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Assessing The Market for Computer

TITLE

Services in Commercial Lines
Companies

LOANED

BORROWER'S NAME

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1983

ASSESSING THE MARKET FOR
COMPUTER SERVICES IN COMMERCIAL
LINES COMPANIES

FINAL REPORT

PREPARED FOR THE
HARTFORD INSURANCE GROUP

DECEMBER 23, 1983

ATTN. Jim Gruen
FOR YOUR files

TOM D. - FOR
HARTFORD INSURANCE

Kathy
JAN 22 1984
Y-HPC
CW

INPUT



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I. MANAGEMENT SUMMARY

A. BACKGROUND AND METHODOLOGY

- INPUT was engaged by the Hartford Insurance Group (HIG) in August 1983 to interview 30 insurance companies to identify several insurance companies that would be good prospects for acquiring HIG's Commercial Lines Automation (CLA) system in the near future, either on a timesharing (service bureau) basis or as software.
 - HIG selected approximately 45 companies that it believed would be good prospects for INPUT to interview. HIG was not identified.
 - INPUT initially interviewed 7 companies in depth, averaging two interviews per company, with respondents from both the insurance and data processing sides of the companies.
 - Receptivity to CLA in its present form was rather low.
- Consequently, at the first project status review, INPUT suggested, and HIG agreed, that companies should be qualified by telephone interviews before they were interviewed on-site.
 - The qualifying interviews were to identify and exclude companies with firm automation plans (either in-house or PMS). The rationale was that such companies would take too long to change such plans and acquire CLA.
 - However, the receptivity to CLA improved only marginally in the next 9 interviews.

- The telephone survey work did, however, add data on the automation status for another 24 companies.
- In the course of these initial 16 interviews INPUT noticed what appeared to be a trend toward the use of "dispersed" processing and suggested that for the remaining respondents, the interview be explicitly expanded to identify the plans and attitudes concerning dispersed processing. HIG agreed that this would be useful.
- Exhibit I-1 summarizes the entities interviewed.
 - Because most respondents were selected randomly and because of the increased sample size, INPUT believes this group is representative of companies generally.
 - Note that the term "entities" is used. As defined here, an entity is either an insurance group or an independent company. INPUT has found, in this study and others, that the vast majority of legally separate members of groups are not in fact operationally separate.
 - This is important when sizing the market. Exhibit I-2 shows how the 1650 P&C "companies" are reduced to 652 entities in commercial lines.
 - Assuming that an entity should have roughly \$15 million direct premiums to normally be an attractive customer for an information services vendor, then there are roughly 200 commercial line entities in the information services marketplace.
 - Note that the 35 entities over \$300 million account for over two-thirds of premiums written (Exhibit I-3). This is important where information services or products revenues may be proportional to entity size.
 - On an entity basis, INPUT's interviews account for approximately one-quarter of the possible market.

EXHIBIT I-1

RESPONDENT COMPANIES

ENTITY SIZE* (COMMERCIAL DIRECT PREMIUMS)	NUMBER OF ENTITIES* INTERVIEWED		
	TELEPHONE ONLY	ON-SITE	TOTAL
\$15-49.9 million	14	6	20
\$50-99.9 million	3	5	8
\$100-299.9 million	7	9	16
\$300 million and over	<u>0</u>	<u>10</u>	<u>10</u>
TOTAL	24	30	54

* ENTITY = GROUP, GROUP COMPONENT OR INDEPENDENT COMPANY

EXHIBIT I-2

ENTITY VS. COMPANY SIZING

<u>SEGMENT SIZE</u> <u>(DIRECT PREMIUMS)</u>	<u>ENTITIES*</u> <u>COMMERCIAL LINES</u>	<u>COMPANIES*</u> <u>ALL LINES</u>
\$300 million or more	35	70
\$100-299 million	40	137
\$50-99 million	31	139
\$10-49 million	145	517
Under \$10 million	<u>401</u>	<u>787</u>
TOTAL	652	1650

* ENTITIES = GROUPS AND INDEPENDENT COMPANIES.

COMPANIES = INDEPENDENT COMPANIES AND GROUP CONSTITUENTS.

EXHIBIT I-3

MARKET SIZING BY PREMIUM SIZE: PREMIUMS

SEGMENT SIZE (DIRECT COMMERCIAL LINES PREMIUMS)	ENTITIES* IN SEGMENT	PREMIUMS (\$ BILL)	PERCENT OF PREMIUMS	
			IN SEGMENT	CUMULATIVE
Over \$1 billion	13	\$23.5	45.8%	45.8%
\$500-999 million	12	9.6	18.7	64.5
\$300-499 million	10	3.7	7.2	71.7
\$200-299 million	14	3.5	6.8	78.5
\$100-199 million	26	3.9	7.6	86.1
\$75-99 million	13	1.1	2.1	88.2
\$50-74 million	18	1.1	2.1	90.3
\$40-49 million	26	1.2	2.3	92.6
\$30-39 million	25	0.9	1.8	94.4
\$25-29 million	14	0.4	.8	95.2
\$20-24 million	20	0.5	1.0	96.2
\$15-20 million	21	0.4	.8	97.0
\$10-15 million	39	0.5	1.0	98.0
\$5-10 million	57	0.4	.8	98.8
\$.1-4 million	284	0.6	1.2	100.0
Under \$.1 million	<u>60</u>	<u>0</u>	<u>0</u>	<u>100.0</u>
TOTAL	652	\$51.3	100.0%	-

* ENTITIES = GROUPS OR INDEPENDENT COMPANIES

B. AUTOMATION STATUS

- Automation in personal lines is well advanced. Most lines are automated, although many systems are quite old.
 - Many systems, even in smaller companies, have been developed in-house (Exhibit I-4). The PMS profile in the sample matches quite closely that published by PMS.
 - It is noteworthy that while about one quarter of respondents plan major changes to their personal lines systems, no net change will occur between the use of in-house and vendor systems. This, among other things, argues that PMS may be reaching a high water mark in terms of its installed base.
- A somewhat similar picture appears when contrasting current and planned commercial lines automation among respondents (Exhibit I-5).
 - In-house automation is expected to remain virtually unchanged, used in approximately 70% of entities.
 - However, the use of vendors is much less clear.
 - Planned PMS use is not buoyant, with commercial lines unlikely to exceed that of personal lines.
 - The use of other vendors, especially those like ISI who offer standalone quoting systems, is expected to drop sharply from current penetration of half of the entities. This reflects a widespread feeling that such products are interim solutions.
 - It is noteworthy that one-fifth of entities plan to make significant changes, but do not know what their choice will be.

EXHIBIT I-4

STATUS OF PERSONAL LINES AUTOMATION

AUTOMATION SOURCE	PERCENT OF ENTITIES BY SIZE (COMMERCIAL DIRECT PREMIUMS; \$ MILLION)				
	<u>\$15-49</u>	<u>\$50-99</u>	<u>\$100-299</u>	<u>\$300*</u>	<u>AVERAGE*</u>
IN HOUSE	60%	50%	38%	90%	78%
VENDOR	30%	38%	56%	30%	34%
PMS	20%	13%	38%	30%	30%
OTHER	10%	25%	19%	0	4%
MANUAL	10%	13%	13%	0	3%

* WEIGHTED BY COMMERCIAL PREMIUMS.

NOTES:

- COLUMNS MAY TOTAL MORE THAN 100% DUE TO MULTIPLE SOURCES OF AUTOMATION.

- N = 54

EXHIBIT I-5

AUTOMATION SOURCES: PERSONAL AND COMMERCIAL LINES

<u>AUTOMATION SOURCE</u>	<u>PERCENT OF ENTITIES, WEIGHTED AVERAGE</u>		
	<u>PERSONAL LINES</u>	<u>COMMERCIAL LINES</u>	
		<u>CURRENT</u>	<u>PLANNED</u>
IN HOUSE	78%	69%	70%
VENDOR	34%	70%	38%
PMS	30%	18%	21%
OTHER	4%	50%	19%
UNKNOWN	0	0	2%
UNKNOWN	0	0	19%
MANUAL	3%	3%	0

N = 54

- There is little question that there will be significant changes in commercial lines automation in coming years. Current automation, while widespread, is very spotty. The cube in Exhibit I-6 shows one way of conceptualizing the extent of insurance automation. The three dimensions represent:
 - The functions automated (quoting, coding, policy issuance, etc.)
 - Automation intensity (in descending order of complexity: interactive, on-line batch, batch).
 - The proportion of lines and premiums automated.
- Each of the areas could have a maximum value of 1.00. Currently, most entities fall far short of this (Exhibit I-7).
 - Even the largest entities, which do reasonably well in each of the three categories, only score .27 out of 1.00.
- Respondents generally wish to have a much higher level of automation than they have presently, i.e., they desire,
 - All major lines automated (rather than one or a few key lines).
 - All functions automated, especially in the smaller entities where this is often not the case.
 - A much higher intensity of automation (at least on-line batch).
- Most respondents are motivated to automate by perceived dollar savings. This is in spite of the fact that few respondents had data or a methodology to prove cost savings. There is, however, strong belief that such savings exist.
 - Larger entities are also strongly motivated by the need to obtain management information to run their business better.

EXHIBIT I-6

COMMERCIAL LINES AUTOMATION

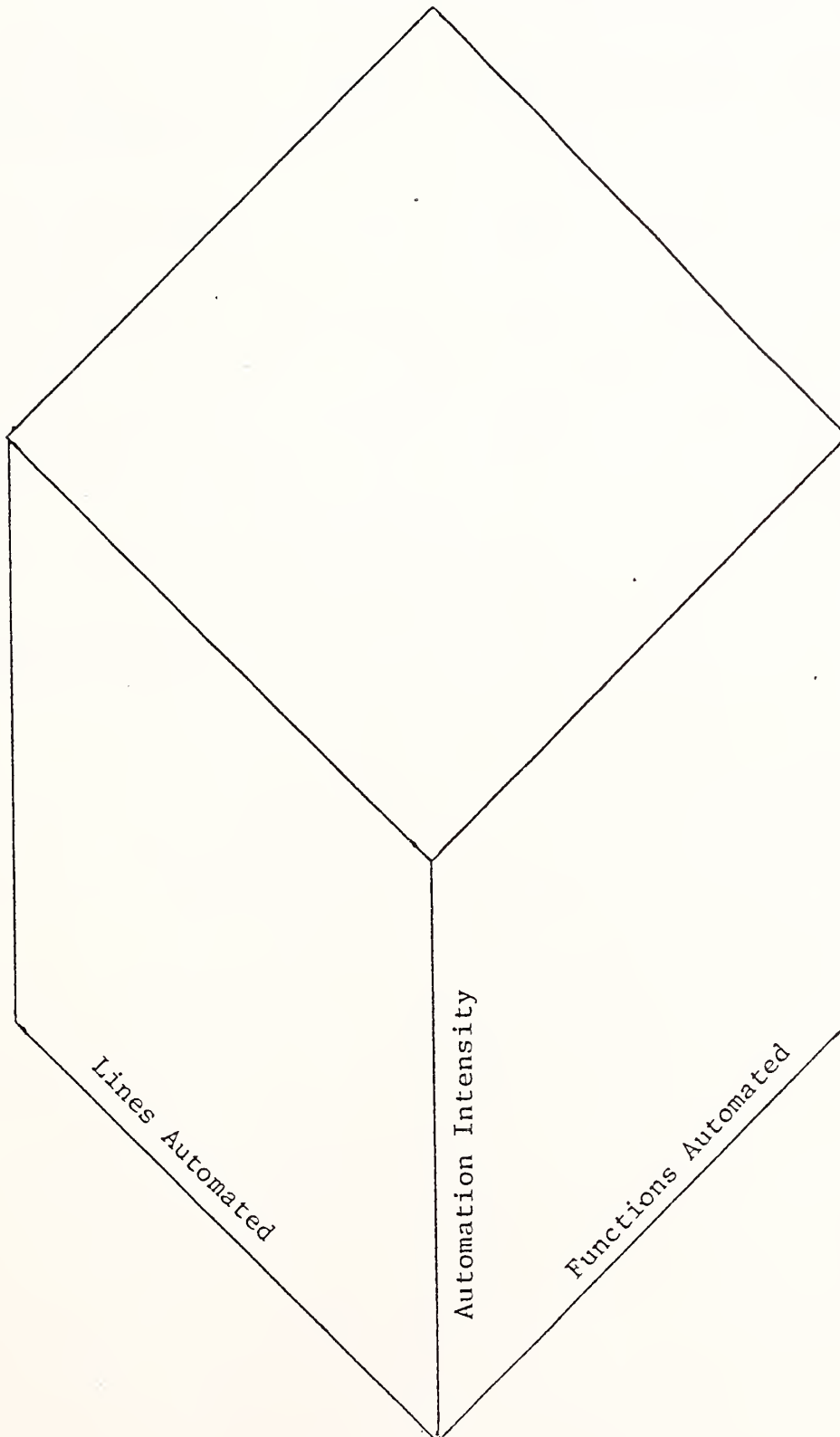


EXHIBIT I-7

AUTOMATION INDEX

<u>INDEXES</u>	<u>ENTITY SIZE (COMMERCIAL DIRECT PREMIUMS; \$ MILLION)</u>				<u>WEIGHTED* AVERAGE</u>
	<u>\$15-49</u>	<u>\$50-99</u>	<u>\$100-299</u>	<u>\$300+</u>	
1. Functions Automated (from Exhibit)	.20	.41	.71	.86	.77
2. Automation Intensity (from Exhibit)	.27	.38	.40	.64	.57
3. Premiums Automated (Estimate)	.30	.40	.45	.50	.47
4. Automation Index (Row 1 x Row 2 x Row 3)	.02	.06	.13	.27	.22

*Weighted by Premiums

- Many entities also see increased automation as improving service.
 - . The larger entities see this in a general way - getting many kinds of information to insureds and agents in a faster, more focussed and accurate way.
 - . Smaller entities often only looked at one aspect of service: faster quote turnaround.

C. FUTURE DIRECTIONS AND OPPORTUNITIES

- One of the findings in the initial interviews was the relatively low level of interest in HIG's product in its host-based form.
- In the case of the service bureau option this is in keeping with general developments in remote computer services (RCS) over the past several years:
 - Many applications are being moved from service bureau to Information Centers or personal computers.
 - Classic service bureau and timesharing operations are increasingly suffering from financial problems.
 - Leading RCS firms estimate that little more than half their revenue now comes from RCS itself; the remainder being made up of information (data base) distribution, intelligent networks, software and hardware sales.
 - PMS's own service bureau has had essentially flat growth over the past three years.
- The question of software sales is more complex, since PMS has had significant sales and Adtec has picked up several companies recently.

- While PMS and Adtec represent different implementation philosophies, their underlying host-based approach is similar in concept to HIG's CLA.
- There is a definite slowing in growth in host-based software, as shown in Exhibit I- 5.
 - . Much of this is due to the committment that such an undertaking represents in terms of cost, time and risk. There is, normally, little chance of turning back.
 - . The size and complexity of this kind of software means that purchasers must assume a significant maintenance burden if, as many companies increasingly intend, they want to market unique insurance products supported by unique software.
- The above are some of the reasons why the dispersed "workstation" approach gained a much higher level of interest (Exhibit I-8).
 - As noted earlier, only the latter half of interviews formally included questions on this approach (Exhibit I-9). However, the reason that this approach was added was that so many of the earlier respondents had, of their own volition, discussed the subject and shown their commitment.
 - The workstation approach is seen as the reverse of the host-based approach: Modularity reduces cost, commitment and risk.
 - In addition, the phenomenal rise of the personal computer in the last two years has made this approach technically feasible and cost-effective, and, equally important, seem very modern and respectable.
- Only a quarter of respondents had firm workstation-related plans, many with Data Concepts, Inc. (Exhibit I-10).

EXHIBIT I-8

LEVELS OF INTEREST IN DIFFERENT OFFERINGS

TYPE OF OFFERING	ENTITY SIZE (COMMERCIAL, DIRECT PREMIUMS; \$ MILLION)				
	\$15-49	\$50-99	\$100-299	\$300+	AVERAGE
					RAW WEIGHTED*
SERVICE BUREAU N = 28	1.2	1.0	1.3	1.2	1.2
HIG/HOST SOFTWARE N = 28	1.0	1.0	1.0	1.1	1.1
WORKSTATION APPROACH N = 32	2.2	2.0	2.5	2.8	2.7

KEY: 1.0 = LOW LEVEL OF INTEREST
2.0 = MEDIUM LEVEL OF INTEREST
3.0 = HIGH LEVEL OF INTEREST

* WEIGHTED BY PREMIUMS

EXHIBIT I-9

"WORKSTATION" APPROACH (DIAGRAM USED IN LATER INTERVIEWS)

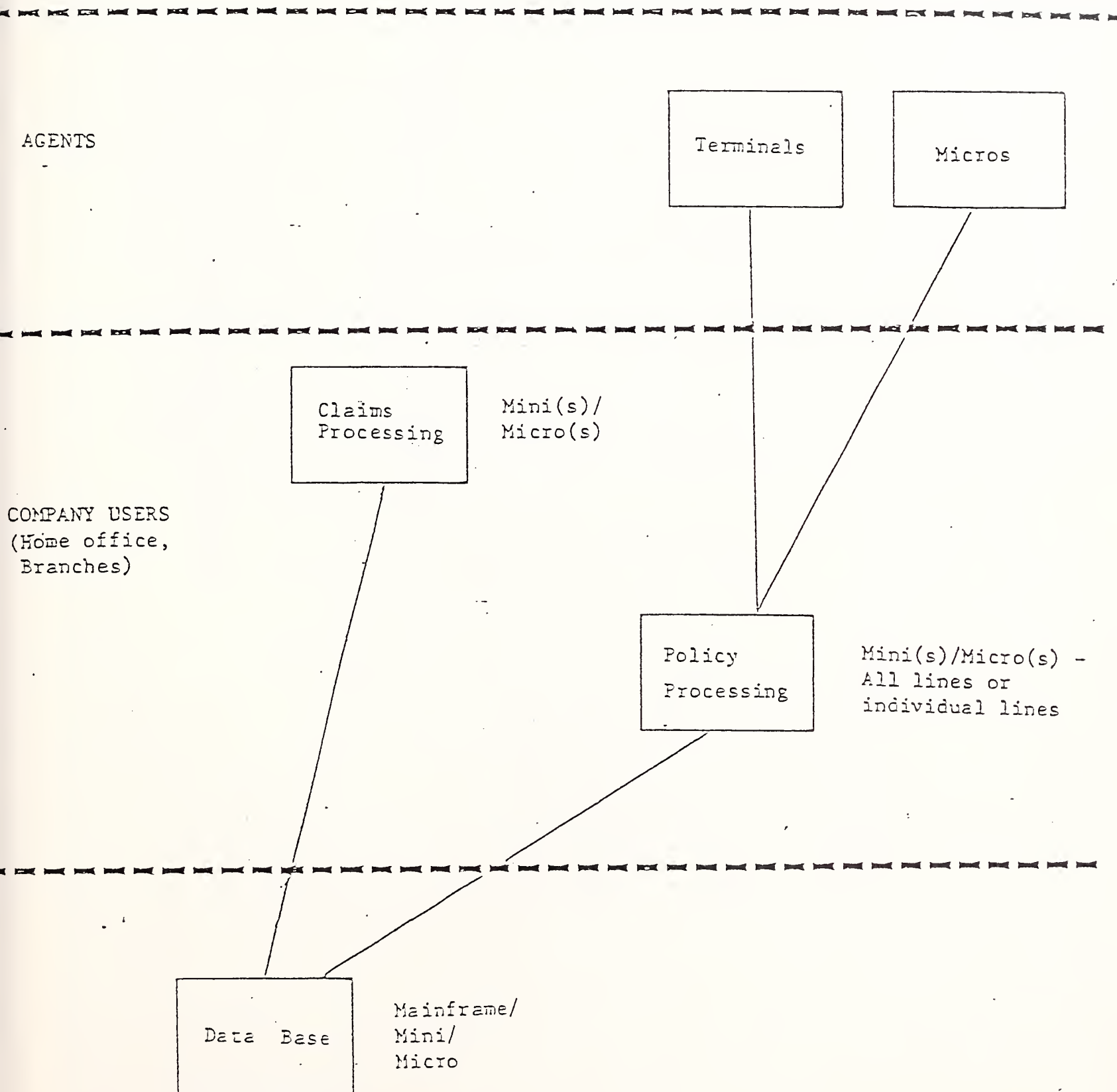


EXHIBIT I-10

WORKSTATION PLANNING STATUS

	ENTITY SIZE (COMMERCIAL DIRECT PREMIUMS; \$ MILLION)					AVERAGE	
	\$15-49	\$50-99	\$100-299	\$300+		RAW	WEIGHTED*
APPROACH SELECTED	17%	40%	36%	20%		28%	23%
NO SELECTION MADE	83%	60%	64%	80%		72%	77%
GENERAL PLANS	16%	0	18%	60%		28%	48%
NO SPECIFIC PLANS	67%	60%	46%	20%		44%	29%
TOTAL	100%	100%	100%	100%		100%	100%

N = 32

* WEIGHTED BY PREMIUMS

- Half had general plans, i.e., the concept was fairly settled, but design and implementation was not.
- Because of this, most respondents did not have a settled view as to the precise division of functionality between the central data base (which virtually all saw a need for) and the dispersed workstations. Note: "Workstations" can run the gamut from an ordinary PC to a super-micro.
- The combination of strong perceived need and unsettled plans represents a clear opportunity.
- Other potential areas of opportunity include agency-company linkage and a centrally-supported quotation function.
 - Respondents are, in essence, waiting to see the boundaries of the agency-company linkage question become clearer before they commit themselves to a particular approach.
 - Many respondents did not view a critical need for a centrally-supported quotation service, either because they were non-standard, believed they got adequate service from a current vendor (e.g., PMS or ISI) or because they had to interpret ISO rates themselves.
 - However, few of the respondents were underwriters.
 - Development of detailed product alternatives and subsequent discussions with underwriters might obtain a more positive response.

D. COMPETITION

- The principal competitors are PMS and Data Concepts Inc. (DCI).
- PMS is a formidable marketing organization.

- However, its growth rate in licensees for its core personal line/commercial lines (PMS) product has not been impressive in recent years (Exhibit I-II). It has, however, been mining its customers intensively and moving into new revenue areas.
- As indicated in Exhibit I-5 , PMS will be very fortunate if its commercial lines penetration equals that in personal lines.
- PMS will have the constraint of competing against itself if it were to introduce a workstation product. However, it would probably introduce a workstation product if the alternative were to watch a large part of the market slip away. It might wait too long, however.
- DCI is a totally different kind of company with a unique product.
 - While it has had high growth recently, it still has fewer than 100 people.
 - It is totally committed to commercial lines automation, using the workstation approach (now offered on the WICAT micro).
 - Its software is proprietary, and targetted for the task of handling complex insurance transactions. Its system is, at the least, user-accessible.
 - There are holes in its offering, most notably commercial auto and a data base. The latter is being partly remedied by constructed "hooks" into the PMS data base.
 - DCI users, even partly disappointed ones, have only positive comments about the company and product (unlike, say, PMS users).
- Electronic Data Systems (EDS) with whom DCI had has a prior business relationship is now beta testing a product that is remarkably similar in concept to the DCI product, although its execution in COBOL may turn out to have been a mistake.

EXHIBIT I-11

PMS GROWTH RATES

	<u>ANNUAL LICENSEE INCREASE</u>		
	<u>PMS</u>	<u>FINANCIAL SYSTEMS (FMS, SMS)</u>	<u>REVENUE GROWTH</u>
1980	17%	72%	38%
1981	11%	15%	51%
1982	11%	11%	49%

E. MARKET SIZE

- This is an attractive market that is peculiar in one helpful respect: Automation budgets are not fixed (in fact they are often not known). Companies will often double their automation spending (as many have with PMS) with the expectation that the investment will pay for itself.
 - Exhibit I-12 and I-13 show INPUT's estimates for commercial lines data processing expenditures in 1983 and 1988.
 - It is unlikely if the PMS share exceeds 1% of current commercial lines DP spending.
 - Give the fact that PMS's share of personal line automation spending can, even in large companies, account for 5-10% of ongoing DP spending, there is a large opportunity, an opportunity at least the size of PMS's current revenues (i.e., over \$40 million).
- This market will be much more receptive to a workstation-oriented product than to traditional host-based software or a service bureau offering.

F. RECOMMENDATIONS

- The commercial lines sector is an attractive market.
 - Rapid environment changes are demanding responsive computer systems.
 - There is significant potential for acceptance of new products.
 - No vendor, including PMS, has a lock on the market especially in view of the market's receptivity to new products.
- HIG should investigate offering a loosely coupled front and back end product.

EXHIBIT I-12

COMMERCIAL LINES DATA PROCESSING EXPENDITURES: 1983

	ENTITY SIZE (COMMERCIAL DIRECT PREMIUMS; \$ MILLION)				TOTAL
	<u>\$15-49</u>	<u>\$50-99</u>	<u>\$100-299</u>	<u>\$300+</u>	
COMMERCIAL PREMIUMS (\$ BILLION)	\$3.4	\$2.2	\$7.4	\$36.8	\$51.3
DATA PROCESSING EXPENDITURES					
PERCENTAGE	1.0%	1.0%	1.0%	1.5%	-
AMOUNT (\$ MILLION)	\$34	\$22	\$74	\$550	\$680
SEGMENT SHARE	5%	3%	11%	81%	100%

EXHIBIT I-13

COMMERCIAL LINES DATA PROCESSING EXPENDITURES: 1988

	ENTITY SIZE (COMMERCIAL DIRECT PREMIUMS; \$ MILLION)				
	<u>\$15-49</u>	<u>\$50-99</u>	<u>\$100-299</u>	<u>\$300+</u>	<u>TOTAL</u>
DATA PROCESSING EXPENDITURES					
PERCENTAGE	1.5%	2.0%	2.0%	1.5%	-
AMOUNT (\$ MILLION)*	\$51	\$44	\$148	\$550	\$793
SEGMENT SHARE	6%	6%	19%	69%	100%

* NO ALLOWANCE MADE FOR CHANGE IN PREMIUM VOLUME OR INFLATION

- The front end options which should be explored include:
 - Downsized HIG components on a 4300 or XT/370.
 - Newly-generated code based on CLA experience for a micro.
 - Acquisition of an existing front-end product (e.g., DCI).
- The back end options include:
 - Offering the CLA data base as it now stands.
 - Offering a subset of the CLA data base architecture.
 - Designing a data base structure derived from CLA.
- The front and back ends should be compatible, but acquirable separately by customers, e.g.,
 - HIG front end with PMS data base.
 - DCI front end with HIG data base.
- The question of the location of functionality within a set of product offerings, especially for coding and policy issuance, is a critical one.
 - DCI is very successfully offering coding and policy issuance as part of a front end, while ISI is not offering a product beyond rating (at least at this time).
 - Many potential purchasers are not yet clear what their final needs will be.
 - Ideally, a product would offer the option of location (i.e., location in either the front or back end). However, this may not prove to be practical or necessary.

- INPUT recommends that HIG lay out the feasible technical options in more detail and then approach a small set of potential customers to see what their needs are.
- HIG should investigate offering an agency interface for the front end, but delay major commitments until market direction is clearer.
- HIG should specify components of a product providing centrally supported quotation data. Steps to achieve this include:
 - Drawing on HIG knowledge to build alternative product specifications.
 - Defining the service further by consulting with knowledgeable external sources.
 - Learning ISO plans and investigating the amount of further value that could be added by a vendor.
 - Testing the market's receptivity to one or more potential product offerings.

II. BACKGROUND AND METHODOLOGY

A. BACKGROUND

- The Hartford Insurance Group (HIG) has implemented a state-of-the-art commercial lines automation systems (CLA) for its own use. CLA is one of the most, if not the most, advanced systems in the industry.
 - CLA was developed over a period of years and is an IMS-based, completely interactive system.
 - CLA handles all major processing functions (quoting, rating, policy issuance, endorsements and cancellations) and has extensive data base and reporting features.
 - All major lines of insurance and most policies within a line can be processed by CLA.
- Very few other organizations have even attempted to develop such a comprehensive system because of the resources, time and commitment required.
 - If another company wished to install such a system it would have to utilize one of the products offered by either PMS or AdTec.
 - Neither of these two products are yet complete and both have had a history of missing announced deadlines. In addition, there is a belief by at least some companies that these two products suffer flaws of design, flexibility and usability.
- With this in mind, HIG has been considering offering CLA to the industry.

- CLA is more complete than the two competitive products.
- HIG and CLA are both well-respected within the industry.
- The key questions which HIG wishes to answer before deciding to market CLA are:
 - Are there at least several companies who would be likely to use CLA in the near future?
 - . What motivates potential customers?
 - . What pricing levels are acceptable?
 - . What effect would the HIG name have on acceptance?
- INPUT was engaged by HIG in August 1983 to interview 30 insurance companies to identify several insurance companies that would be good prospects for acquiring HIG's CLA system in the near future, either on a timesharing (service bureau) basis or as software.

B. METHODOLOGY

- INPUT initially met the HIG project group where the goals and scope of the study were reviewed. INPUT was also briefed on the status and functions of CLA.
- INPUT and HIG reviewed a draft interview guide which INPUT had prepared. As a result of the review, the interview guide was finalized. (See Appendix A for a copy of the interview guide.)
- HIG proposed a list of approximately 45 P&C companies for interviewing by INPUT. These were companies which HIG believed to be better than average prospects for CLA.

- INPUT then wrote to approximately half of these companies to describe in general terms the research study; this was followed up by a telephone call to arrange interviews with responsible staff in each company.
 - The general response was quite positive; in the first phase of the study, seven companies were interviewed and an average of two people from each company was interviewed, usually a person from a user area, e.g., from general administration, operations or underwriting as well as an information systems manager.
 - HIG was not identified at any point of the study.
 - Respondents were informed and forthcoming. Interviews lasted an average of 1 1/2 hours and often went into great depth and detail. Several interviews were in excess of two hours and one was in excess of three hours. Only one interview was less than an hour.
- Receptivity to CLA in its present form, however, was rather low. Consequently, at the first project status review, INPUT suggested, and HIG agreed, that companies should be qualified by telephone interviews before they were interviewed on-site.
 - The qualifying interviews were to identify and exclude companies with firm automation plans (either in-house or PMS). The rationale was that such companies would take too long to change such plans and acquire CLA.
 - However, the receptivity to CLA improved only marginally in the next 9 interviews.
 - The telephone survey work did, however, add data on the automation status and plans for another 24 companies.

- In the course of these initial 16 interviews INPUT noticed what appeared to be a trend toward the use of "dispersed" processing and suggested at the second project status review that for the remaining respondents the interview be explicitly expanded to identify the plans and attitudes concerning dispersed processing. HIG agreed that this would be useful. Appendix A-2 shows the additional issues and questions that were added.
- It was also agreed that INPUT would interview Data Concepts, Inc. since they appeared to be the most significant vendor offering a dispersed processing product. (Note: This interview was in addition to those originally contracted for.)

C. "ENTITIES" VS "COMPANIES"

- It is commonly, and accurately, stated that there are 1,650 P&C companies.
 - There are 1,650 legally distinct companies; however, a large number of them are virtually inactive, being little more than shells.
 - Equally important, many companies have legal, but not operational, independence; virtually all companies that are components of a group function under central direction. The recent pressures within the insurance industry appear to have accentuated this.
 - From the standpoint of this study it is also very important to examine groups and independent companies from the standpoint of their involvement in commercial lines.
- Exhibit II-1 shows that the 1,650 "companies" shrinks to 652 commercial lines "entities"; entity being a word that will be used in this report to refer to an insurance group or independent company.
- If the shell entities (defined here as those with less than \$100,000 in direct premiums) are excluded, then these figures fall to 659 and 592, respectively (Exhibit II-2.)

EXHIBIT II-1

ENTITY VS. COMPANY SIZING

<u>SEGMENT SIZE (DIRECT PREMIUMS)</u>	<u>ENTITIES* COMMERCIAL LINES</u>	<u>COMPANIES* ALL LINES</u>
\$300 million or more	35	70
\$100-299 million	40	137
\$50-99 million	31	139
\$10-49 million	145	517
Under \$10 million	<u>401</u>	<u>787</u>
TOTAL	652	1650

* ENTITIES = GROUPS AND INDEPENDENT COMPANIES.

COMPANIES = INDEPENDENT COMPANIES AND GROUP CONSTITUENTS.

PC ENTITIES

	ENTITY SIZE						TOTAL
	(DIRECT PREMIUMS; \$ MILLION)						
	<u>\$0.1-4</u>	<u>\$5-14</u>	<u>\$15-49</u>	<u>\$50-99</u>	<u>\$100-299</u>	<u>\$300+</u>	
TOTAL P&C	201	143	139	63	61	52	659
COMMERCIAL	284	96	106	31	40	35	592

- Assuming that an entity should have roughly \$15 million direct premiums to normally be an attractive customer for an information services vendor, then there are roughly 200 commercial line entities in the market for information services (Exhibit II-3).
- It is very important when dealing with this market to keep in mind that the 35 entities over \$300 million account for over two-thirds of premiums written (Exhibit II-4). This is important where information services or products revenues may be proportional to entity size.
 - The fact that there are only approximately 200 buying points and that buying power is skewed toward a small number of entities should be taken into account in any marketing strategy.
 - The number of buying points will probably shrink somewhat, give current tendencies for mergers and acquisitions.

D. RESPONDENTS PROFILE

- As noted earlier, INPUT was quite pleased with the qualitative response to the study by respondents. However, to what extent can these results be used to project findings across the industry? This is an issue because the initial interview methodology was consciously skewed toward a particular type of company, one that would be receptive to CLA. INPUT believes that the study's findings are broadly representative of the industry for several reasons:
 - At most, only the first seven interviews represented a skewed selection of respondents. However in fact, there appeared to be nothing in that group's responses to show that they were in fact biased toward a CLA-like product.
 - Equally important, by the time the study was over, INPUT had interviewed 54 organizations, 30 in depth and 24 regarding current and planned automation (Exhibit II-5). Appendix C identifies the specific entities interviewed.

EXHIBIT II-3

MARKET SIZING BY PREMIUM SIZE: ENTITIES

SEGMENT SIZE (DIRECT COMMERCIAL LINES PREMIUMS)	NUMBER OF ENTITIES*	
	IN SEGMENT	CUMULATIVE
Over \$1 billion	13	13
\$500-999 million	12	25
\$300-499 million	10	35
\$200-299 million	14	49
\$100-199 million	26	75
\$75-99 million	13	88
\$50-74 million	18	106
\$40-49 million	26	132
\$30-39 million	25	157
\$25-29 million	14	171
\$20-24 million	20	191
\$15-20 million	21	212
\$10-14 million	39	251
\$ 5-9 million	57	308
\$.1-4 million	284	592
Under \$.1 million	60	652

* ENTITIES = GROUPS OR INDEPENDENT COMPANIES

EXHIBIT II-4

MARKET SIZING BY PREMIUM SIZE: PREMIUMS

SEGMENT SIZE (DIRECT COMMERCIAL LINES PREMIUMS)	ENTITIES* IN SEGMENT	PREMIUMS (\$ BILL)	PERCENT OF PREMIUMS	
			IN SEGMENT	CUMULATIVE
Over \$1 billion	13	\$23.5	45.8%	45.8%
\$500-999 million	12	9.6	18.7	64.5
\$300-499 million	10	3.7	7.2	71.7
\$200-299 million	14	3.5	6.8	78.5
\$100-199 million	26	3.9	7.6	86.1
\$75-99 million	13	1.1	2.1	88.2
\$50-74 million	18	1.1	2.1	90.3
\$40-49 million	26	1.2	2.3	92.6
\$30-39 million	25	0.9	1.8	94.4
\$25-29 million	14	0.4	.8	95.2
\$20-24 million	20	0.5	1.0	96.2
\$15-20 million	21	0.4	.8	97.0
\$10-15 million	39	0.5	1.0	98.0
\$5-10 million	57	0.4	.8	98.8
\$.1-4 million	284	0.6	1.2	100.0
Under \$.1 million	<u>60</u>	<u>0</u>	<u>0</u>	<u>100.0</u>
TOTAL	652	\$51.3	100.0%	-

* ENTITIES = GROUPS OR INDEPENDENT COMPANIES

EXHIBIT II-5
RESPONDENT COMPANIES

ENTITY SIZE* (COMMERCIAL DIRECT PREMIUMS)	NUMBER OF ENTITIES* INTERVIEWED		
	TELEPHONE ONLY	ON-SITE	TOTAL
\$15-49.9 million	14	6	20
\$50-99.9 million	3	5	8
\$100-299.9 million	7	9	16
\$300 million and over	<u>0</u>	<u>10</u>	<u>10</u>
TOTAL	24	30	54

* ENTITY = GROUP, GROUP COMPONENT OR INDEPENDENT COMPANY

- Consequently, INPUT obtained data from about one quarter of the entities in the commercial lines target market. While the proportion of a total population interviewed usually has no direct bearing on significance, to have gone much further would have changed the process from a sampling to a census.
- Was there perhaps some unknown force that was prompting self-selection by responding entities? The low number of actual rejects would seem to argue against this (and also pointed up the interest levels on this issue).
 - On a more quantitative level, it is reassuring that, generally speaking, the study's distribution of PMS clients tracks closely to that supplied by PMS (Exhibit II-6). Note: INPUT transformed the PMS customer list from a company to an entity basis.
 - Only in the \$50-99 million premium range is there a substantial difference. This is probably due to a combination of factors:
 - . The relatively small size of this subsample.
 - . PMS use of 1981 premium data.
 - . The fact that the study sampling was based on commercial lines premiums while PMS premiums are total P&C premiums. (The sample entities in INPUT's sample were reclassified on a total premium basis for this comparison).
- In addition to being knowledgeable, the respondents were also of a position to have insight into their organization's functioning and to be able to speak authoritatively. Exhibit II-7 shows the distribution of respondents by title.
- Due to the in-depth nature of the on-site interviews it was feasible to "retrofit" most of the interviews in phases 1 and 2 to accommodate the expansion in study scope agreed to at the second progress review; where necessary, respondents were contacted by telephone for follow up.

PMS PENETRATION: INPUT SURVEY VS. PMS CUSTOMER LIST (U.S. CUSTOMERS)

SOURCE	ENTITY SIZE				AVERAGE	
	(TOTAL P&C DIRECT PREMIUMS; \$ MILLION)				RAW	WEIGHTED*
	\$15-49	\$50-99	\$100-299	\$300+		
SURVEY	20%	13%	38%	30%	26%	30%
PMS	20%	27%	39%	33%	27%	33%

* WEIGHTED BY PREMIUM SIZE.

EXHIBIT II-7

RESPONDENT DISTRIBUTION BY TITLE

ENTITY SIZE
(DIRECT COMMERCIAL PREMIUMS; \$ MILLION)

RESPONDENT TITLE	<u>\$15-44.9</u>			<u>\$50-99.9</u>			<u>\$100-299.9</u>			<u>\$300+</u>			<u>TOTAL</u>		
	<u>T</u>	<u>O</u>	<u>TOT</u>	<u>T</u>	<u>O</u>	<u>TOT</u>	<u>T</u>	<u>O</u>	<u>TOT</u>	<u>T</u>	<u>O</u>	<u>TOT</u>	<u>T</u>	<u>O</u>	<u>TOT</u>
SR/EXEC VP	0	0	0	1	2	3	1	0	1	0	3	3	2	5	7
VP	5	5	10	3	2	5	4	4	8	0	1	1	12	12	24
AVP	3	3	6	0	1	1	0	4	4	0	5	5	3	13	16
DIR/MGR	<u>6</u>	<u>2</u>	<u>8</u>	<u>1</u>	<u>0</u>	<u>1</u>	<u>2</u>	<u>7</u>	<u>9</u>	<u>0</u>	<u>6</u>	<u>6</u>	<u>9</u>	<u>15</u>	<u>24</u>
TOTAL	14	10	24	5	5	10	7	15	22	0	15	15	26	45	71

KEY: T = TELEPHONE
O = ON-SITE
TOT = TOTAL

III. AUTOMATION STATUS

- Automation in personal lines is well advanced. Most lines are automated, although many systems are quite old.
 - Many systems, even in smaller companies, have been developed in-house (Exhibit III-1). As noted earlier, the PMS profile in the sample matches quite closely that published by PMS.
 - While about one quarter of respondents plan major changes to their personal lines systems, no net change is planned in the use of in-house compared to vendor systems. This argues that PMS may be reaching a high water mark in terms of its installed base; the PMS issue will be examined in more detail in Chapter V.
- Currently, there is a rough equivalence in the amount of commercial lines automation from in-house as opposed to vendor sources (Exhibit III-2).
 - Most of the vendor automation is from non-PMS sources, typically mini-or micro-based quotation systems.
 - Comprehensive automation is limited to PMS, DCI and some of the systems developed in-house.
 - Larger companies tend to use automation from more sources. This results in a patchwork of systems that have built up over the years; some respondents observed that being a pioneer is not always desirable in terms of developing a coherent system.
- This patchwork is evident when examining the extent of automation within entities (Exhibit III-3).
 - Only a few entities have automated substantially all functions ("functions" being quoting, rating, policy issuance, etc.) Most entities still have at least some major functions not automated.

EXHIBIT III-1

STATUS OF PERSONAL LINES AUTOMATION

AUTOMATION SOURCE	PERCENT OF ENTITIES BY SIZE (COMMERCIAL DIRECT PREMIUMS; \$ MILLION)				
	<u>\$15-49</u>	<u>\$50-99</u>	<u>\$100-299</u>	<u>\$300*</u>	<u>AVERAGE*</u>
IN HOUSE	60%	50%	38%	90%	78%
VENDOR	30%	38%	56%	30%	34%
PMS	20%	13%	38%	30%	30%
OTHER	10%	25%	19%	0	4%
MANUAL	10%	13%	13%	0	3%

* WEIGHTED BY COMMERCIAL PREMIUMS.

NOTES:

- COLUMNS MAY TOTAL MORE THAN 100% DUE TO MULTIPLE SOURCES OF AUTOMATION.
- N = 54

EXHIBIT III-2

COMMERCIAL LINES AUTOMATION: CURRENT

AUTOMATION SOURCE	PERCENT OF ENTITIES BY SIZE (COMMERCIAL DIRECT PREMIUMS; \$ MILLION)				
	<u>\$15-49</u>	<u>\$50-99</u>	<u>\$100-299</u>	<u>\$300+</u>	<u>AVERAGE*</u>
IN HOUSE	50%	75%	75%	70%	69%
VENDOR	30%	50%	44%	80%	70%
PMS	0	0	19%	20%	18%
OTHER	30%	50%	25%	60%	50%
MANUAL	25%	25%	6%	0	3%

* WEIGHTED BY COMMERCIAL PREMIUMS.

NOTES:

- COLUMNS MAY TOTAL MORE THAN 100% DUE TO MULTIPLE SOURCES OF AUTOMATION.
- N = 54

TYPE OF AUTOMATION IN AT LEAST
ONE LINE OR FUNCTION

TYPE OF AUTOMATION	PERCENTAGE OF ENTITIES, BY SIZE (COMMERCIAL DIRECT PREMIUMS; \$ MILLION)			
	\$15-49	\$50-99	\$100-299	\$300+ WEIGHTED* AVERAGE
INTERACTIVE	30%	50%	44%	80% 70%
ON-LINE BATCH	25%	25%	38%	50% 45%
BATCH	20%	13%	25%	30% 28%
NONE				
TOTALLY UNAUTOMATED	25%	25%	0	0 3%
SOME MAJOR FUNCTIONS UNAUTOMATED	65%	75%	69%	80% 77%
MINOR FUNCTIONS UNAUTOMATED	10%	0	31%	20% 20%
AUTOMATION INTENSITY INDEX**	.27	.38	.40	.64 .57

* WEIGHTED BY PREMIUMS.

** WEIGHTS: INTERACTIVE = 5, ON-LINE BATCH = 3, BATCH = 1

- Where there is automation it is most often interactive, for all sized entities. This at first seems surprising until the ISI-type quoting systems are taken into account.
- About three-quarters of entities still use batch and on-line batch (i.e., batch update and on-line query) as their workhorse systems.
- For comparison purposes an index of "automation intensity" has been constructed by giving interactive system usage a weight of 5, on-line batch a weight of 3 and batch a weight of 1.
 - Out of a "perfect score" of 1.00, the entities over \$300 million receive a .64 and the smallest entities a .27.
 - This is in line with intuitive observations, although, by itself, it tends to overrate entities because of the predominance of standalone, micro-based quoting systems.
- Automation is somewhat more evenly distributed from a function standpoint (Exhibit III-4).
 - Not surprisingly, the largest entities have more of their functions automated than small entities.
 - Smaller entities fell off even more sharply in endorsements compared to the largest entities. Having even a partial automatic endorsement capability is one test of the seriousness of automation in an entity.
 - An index of "functions automated" has been constructed, similar to the index of automation intensity.
- Commercial lines automation, then, varies appreciably by both functions automated and the intensity of automation. In addition, of course, there is also substantial variation in how much business is automated.

FUNCTIONS AUTOMATED IN AT LEAST ONE LINE

FUNCTION	PERCENTAGE OF ENTITIES, BY SIZE (COMMERCIAL DIRECT PREMIUMS; \$ MILLION)				
	<u>\$15-49</u>	<u>\$50-99</u>	<u>\$100-299</u>	<u>\$300+</u>	<u>WEIGHTED* AVERAGE</u>
RATE/QUOTE	40%	75%	75%	100%	91%
CODING	20%	25%	75%	80%	73%
POLICY ISSUE	20%	38%	69%	80%	72%
ENDORSEMENTS	0	25%	50%	80%	68%
DATABASE	30%	50%	89%	90%	84%
INDEX**	.20	.41	.71	.86	.77

* WEIGHTED BY PREMIUMS.

** ENDORSEMENTS AND DATABASE GIVEN A WEIGHT OF 2,
ALL OTHERS A WEIGHT OF 1.

- In many companies only one or two lines are automated. In many cases these are important lines; in others, it is the line easiest to automate.
- While companies know which functions in which lines are automated, there is often no reliable data on what portion of the business is handled. INPUT estimates that this ranges, on the average from 30% in small entities to 50% in large ones.
- As a way of further quantifying the overall amount of automation, it is useful to picture automation as a cube (Exhibit III-5) with the three dimensions of:
 - Functions automated
 - Automation intensity
 - Lines/premiums automated.
- If each dimension is equal to 1.0, then the maximum automation is 1.0 (volume of the cube = $1 \times 1 \times 1$).
 - Exhibit III-6 provides an overall automation index by multiplying the index values for each dimension of automation.
 - In even the larger entities, automation is about one-quarter of the maximum, while the smaller companies are practically unautomated (for comparison, HIG would be rated between .8 and .9).
- Most companies do not view automation in these harsh, but not unjust, terms. They usually see themselves as well on the road to automation.
 - Virtually all plan to automate all functions and all their key lines. Many would be willing to accept the halfway house of on-line batch, however,
 - The exact methods they plan to use to achieve these goals is often not clear, though. As Exhibit III-7 shows, about one-fifth of entities are not sure of the means or vendors of their future automation.

EXHIBIT III-5
COMMERCIAL LINES AUTOMATION

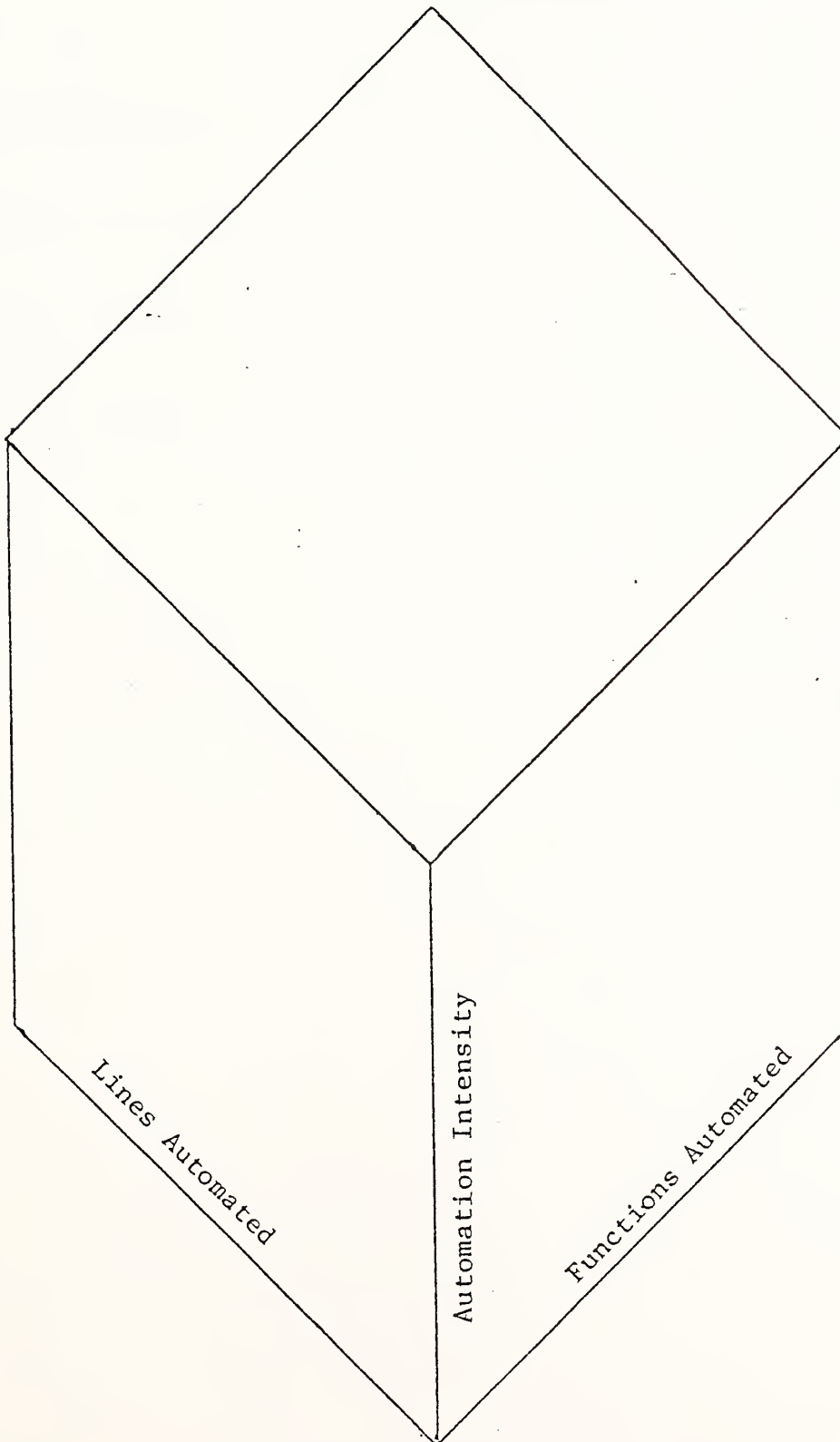


EXHIBIT III-6

AUTOMATION INDEX

<u>INDEXES</u>	ENTITY SIZE (COMMERCIAL DIRECT PREMIUMS; \$ MILLION)				<u>WEIGHTED*</u> <u>AVERAGE</u>
	<u>\$15-49</u>	<u>\$50-99</u>	<u>\$100-299</u>	<u>\$300+</u>	
1. Functions Automated (from Exhibit)	.20	.41	.71	.86	.77
2. Automation Intensity (from Exhibit)	.27	.38	.40	.64	.57
3. Premiums Automated (Estimate)	.30	.40	.45	.50	.47
4. Automation Index (Row 1 x Row 2 x Row 3)	.02	.06	.13	.27	.22

*Weighted by Premiums

EXHIBIT III-7

COMMERCIAL LINES AUTOMATION: PLANNED

AUTOMATION SOURCE	PERCENT OF ENTITIES BY SIZE (COMMERCIAL DIRECT PREMIUMS; \$ MILLION)				
	<u>\$15-49</u>	<u>\$50-99</u>	<u>\$100-299</u>	<u>\$300+</u>	<u>AVERAGE*</u>
IN HOUSE	30%	50%	44%	80%	70%
VENDOR	45%	26%	32%	40%	38%
PMS	30%	13%	19%	20%	21%
OTHER	15%	13%	13%	20%	19%
UNKNOWN	20%	0	7%	0	2%
UNKNOWN	5%	25%	19%	20%	19%

* WEIGHTED BY PREMIUMS.

NOTES:

- COLUMNS MAY TOTAL MORE THAN 100% DUE TO MULTIPLE SOURCES OF AUTOMATION.
- N = 54

- Several observations can be made when contrasting sources of automation between personal lines and current and planned commercial lines (Exhibit III-8):
 - In-house automation is surprisingly stable.
 - Planned PMS commercial lines automation does not equal personal lines automation. (As noted earlier, there is no net change expected in PMS use in personal lines).
 - Planned use of non-PMS vendors, while dropping, will still be significant.
 - Most of this fall off in non-PMS vendor use is because many companies now see standalone quoting systems as an interim solution.
 - As will be discussed in depth in the next chapter, respondents definitely did not see the front end function disappearing.
- Most respondents are motivated to automate by perceived dollar savings (see Exhibit III-9). This is in spite of the fact that few respondents had data or a methodology to prove cost savings. There is, however, strong belief that such savings exist.
 - Larger entities are also strongly motivated by the need to obtain management information to run their business better.
 - Many respondents also see increased automation as improving service.
 - The larger entities see this in a general way - getting many kinds of information to insureds and agents in a faster, more focussed and accurate way.
 - Smaller entities often only looked at one aspect of service: faster quote turnaround.

EXHIBIT III-8

AUTOMATION SOURCES: PERSONAL AND COMMERCIAL LINES

<u>AUTOMATION SOURCE</u>	<u>PERCENT OF ENTITIES, WEIGHTED AVERAGE</u>		
	<u>PERSONAL LINES</u>	<u>COMMERCIAL LINES</u>	
		<u>CURRENT</u>	<u>PLANNED</u>
IN HOUSE	78%	69%	70%
VENDOR	34%	70%	38%
PMS	30%	18%	21%
OTHER	4%	50%	19%
UNKNOWN	0	0	2%
UNKNOWN	0	0	19%
MANUAL	3%	3%	0

N = 54

COMMERCIAL LINES AUTOMATION MOTIVATIONS

PERCENT OF ENTITIES CITING, BY SIZE (COMMERCIAL DIRECT PREMIUMS; \$ MILLION)						
REASON	\$15-49	\$50-99	\$100-299	\$300+	AVERAGE	
					RAW	WEIGHTED*
COST SAVINGS	50%	75%	69%	90%	67%	83%
MANAGEMENT INFORMATION	20%	38%	38%	90%	41%	75%
SERVICE	10%	25%	31%	30%	22%	28%
SPEED/TURNAROUND	30%	63%	50%	0	35%	12%
ACCURACY	15%	25%	25%	10%	19%	13%
COMPETITION	15%	13%	6%	10%	11%	10%
MANAGEMENT CONTROL	0	0	6%	20%	6%	16%

NOTE: • COLUMNS TOTAL MORE THAN 100% DUE TO MULTIPLE RESPONSES.

• N = 54

* WEIGHTED BY PREMIUMS

- Improved accuracy and a generalized ability/need to meet competition were seen as important to some companies.
- Larger companies saw increased automation as helping central management exerting more control over operations.

IV. FUTURE DIRECTIONS AND OPPORTUNITIES

- The five opportunities listed below were explored in depth with the on-site respondents. The last three were added to the original study scope; as noted earlier, this was feasible because of the nature of the interview process.
 - A CLA-based service bureau offering using the HIG facility in a timesharing mode.
 - The CLA software itself.
 - A "workstation" product.
 - An agency-company linkage product or service.
 - A centrally supported quotation facility.

A. A CLA-BASED SERVICE BUREAU OFFERING

- As noted in Chapter II, one of the findings in the initial interviews was the relatively low level of interest in HIG's product in its host-based form, i.e., both the service bureau and software forms.
- In the case of the service bureau option this is in keeping with general developments in remote computer services (RCS) over the past several years:
 - Many applications are being moved from service bureau to Information Centers or personal computers. Communication costs and uncertainties are increasing with the breakup of AT&T.
 - Classic service bureau and timesharing operations are increasingly suffering from financial problems, as witnessed by the virtual abandonment of Datacrown's traditional RCS business and the acquisition of United Information Services and Tymshare.

- Leading RCS firms estimate that little more than half their revenue now comes from RCS itself; the remainder being made up of information (data base) distribution, intelligent networks, software and hardware sales.
- The P&C-oriented RCS processing business is in essentially in the same position.
 - NUCO (a Burroughs-based service bureau) and Insurance Network Systems which (offers customized commercial lines applications) have each been in business over three years and have had little customer growth during that period.
 - PMS's own service bureau business has had essentially flat growth during this period (Exhibit IV-1).
 - Much of this business is transitory. Little more than 40% of their 1980 service bureau customers were also service bureau customers in 1983. Most of these have become software customers.
 - This is consistent with the observation made by the head of another information service firm offering P&C processing services. He said that in his experience most service bureau customers had really committed to the underlying software and for operational or scheduling reasons were temporarily using the software on a timesharing basis.
 - The largest PMS commercial lines service bureau client, which INPUT interviewed, definitely felt that they were using "their" software on a timesharing basis, as a matter of convenience. The respondent had little doubt that they would soon (perhaps in 1984) be bringing the software in house.

B. SOFTWARE SALES

- The question of software sales is more complex, since PMS has had significant sales generally and AdTec has picked up several companies recently.

PMS SERVICE BUREAU GROWTH

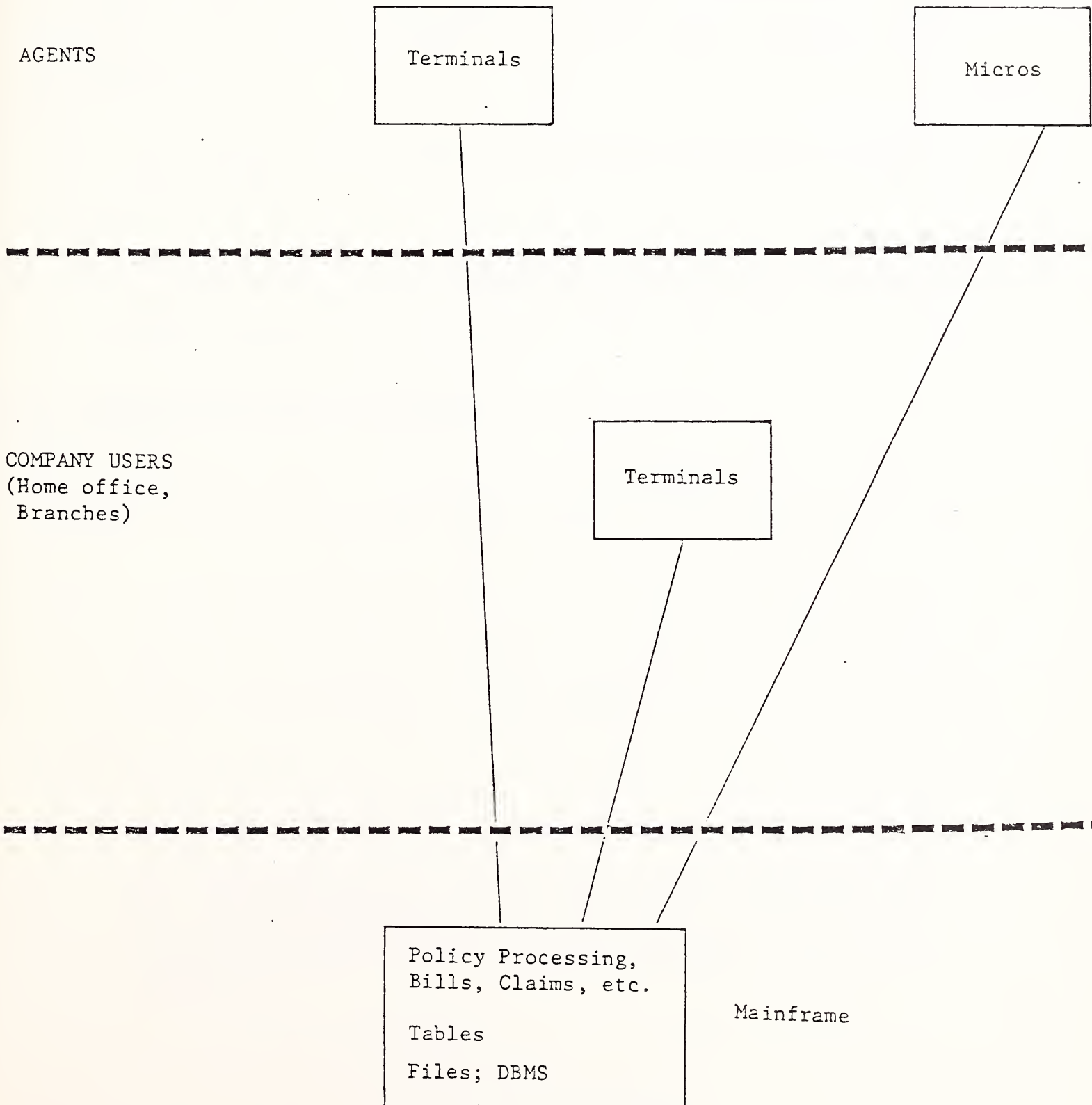
	UNDER \$15	NUMBER OF CUSTOMERS BY ENTITY SIZE (DIRECT PREMIUMS; \$ MILLION)					TOTAL	PREMIUMS (\$ MILLION)
		\$15-49	\$50-99	\$100-299	\$300+			
1980	5	6	3	2	0		16	\$598
1983	2	6	4	1*	0		13	\$680

* 16 NEW ENGLAND MUTUALS (14 UNDER \$15 MILLION)

- While PMS and AdTec represent different implementation philosophies, their underlying host-based approach is similar in concept to HIG's CLA. There is a definite slowing in growth in host-based software, as earlier shown in Exhibit III-8.
- The reason for this slowing of host-based software growth came out in the interviews where, initially in words and, later, in the diagram in Exhibit IV-2, interviewees attitudes toward host-based systems were explored. Their attitudes were surprisingly negative, given the prevalence of such systems.
 - However, the very prevalence (plus extensive negative hearsay concerning PMS) had sensitized many respondents as to the magnitude of the commitment that such an undertaking represents in terms of cost, time and risk. There is, normally little chance of turning back once this commitment has been made, in the views of respondents.
- The size and complexity of this kind of software also means that purchasers must assume a significant maintenance burden if, as many companies increasingly intend, they want to market unique insurance products supported by unique software.
 - One respondent, for example, said that his company's in-house system, parts of which were several years old, was "wearing out" from the rate of modifications required. The integrated nature of the software has made maintenance requirements cascade.
 - Similarly, most large software systems have explicit or implicit architectural constraints in their basic design. For example, one senior data processing person was agonizing over the maintenance requirements in what should have been a straightforward Workers Comp system: "We were assured that we would never have multiple rate levels in a single state; now we have hundreds."
 - The problems are not limited to in-house software. PMS users find that they drift away from the basic PMS system in order to meet their company's needs. Several respondents had had to consider whether they should cut themselves off from PMS maintenance: Neither alternative was very attractive.

EXHIBIT IV-2

MAINFRAME (HOST) APPROACH
(DIAGRAM USED IN LATER INTERVIEWS)



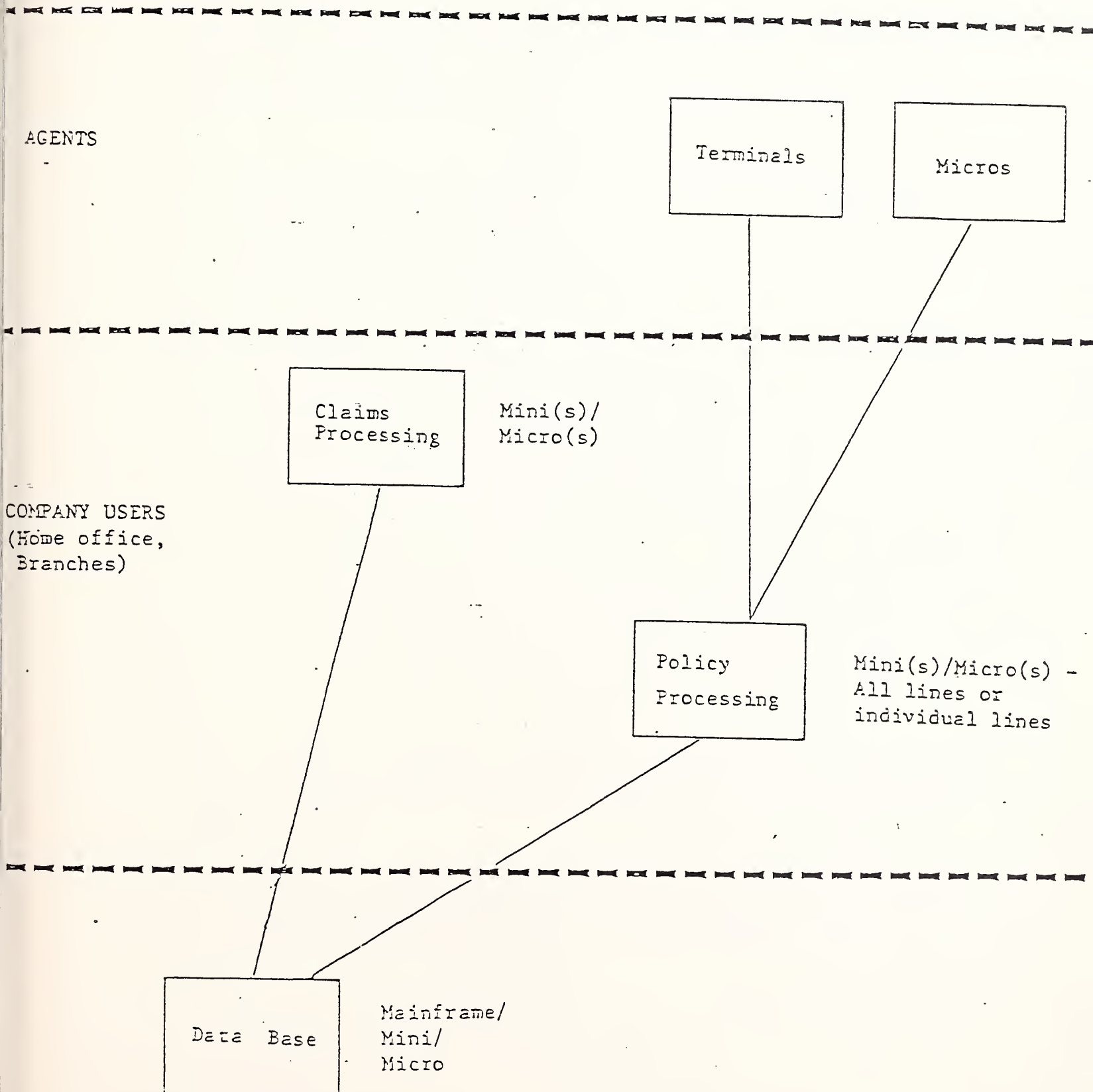
- A senior executive at a long-standing PMS account said "PMS was the right thing to do at the time, but I'm not sure if it is the right choice for the future."
- A respondent who was acquainted with CLA said, "I could not afford to support a system like Hartford's, even if I got the software free."
- It is not an exaggeration to say that many of the more experienced and thoughtful respondents believe that, in the words of one, "we and other large companies seem to be reaching the limits of what is possible on the mainframe."
- Two companies he specifically cited were also interviewed and expressed similar opinions,
- The main architect of a commercial lines system that is considered successful by many in the organization stated: "My system is the wrong approach now."

C. THE "WORKSTATION APPROACH"

- The widespread negative attitude toward the host-based service bureau and software approaches are pushing many companies to look at alternatives.
- As noted earlier, only the latter half of interviews formally included questions on this approach. However, the reason that this approach was added was that so many of the earlier respondents had, of their own volition, discussed the subject and shown their commitment.
- Exhibit IV-3 was used in the later interviews as a contrast to the host-based model in Exhibit IV-2. Generally speaking, the reaction was to confirm and expand further what respondents had been sketching on their own. In several instances, especially with non-technical respondents, the reaction to Exhibit IV-3 was almost electric: "That's what I've been trying to describe."

EXHIBIT IV-3

"WORKSTATION" APPROACH (DIAGRAM USED IN LATER INTERVIEWS)



- It was not unusual, even among data processing professionals, to see respondents edge gingerly onto the workstation topic, since in many cases the approach represents such a change for their organization.
- The very high level of interest in the workstation approach compared to the host-based alternatives (Exhibit IV-4) was an unanticipated finding.
 - The workstation approach is seen as the reverse of the host-based approach: Modularity reduces cost, commitment and risk. To some extent this may be part of the "grass is greener" syndrome. On the other hand, those with actual experience were among the most positive.
 - One large company had recently installed a new function on an in-house developed micro-based workstation. A similar function that had been installed on their integrated system had taken three times the cost and time. They were believers.
 - DCI companies had uniformly positive experiences to report on time, cost and modularity.
 - Certainly, those who had looked at both PMS and DCI had come away with far more positive opinions of the DCI approach.
- INPUT believes that it is no coincidence that DCI has begun to grow fast at the same time that personal computers have taken off (although, ironically, until recently DCI was working with a technologically obsolescent minicomputer).
 - The reality of personal computers price/performance plus their undesirable glossy image has made the workstation approach both feasible and respectable.
 - INPUT's other research studies indicate that this is a change in attitude that began little more than a year ago and is still picking up speed.

EXHIBIT IV-4

LEVELS OF INTEREST IN DIFFERENT OFFERINGS

TYPE OF OFFERING	ENTITY SIZE (COMMERCIAL DIRECT PREMIUMS; \$ MILLION)				
	\$15-49	\$50-99	\$100-299	RAW	WEIGHTED*
SERVICE BUREAU N = 28	1.2	1.0	1.3	1.2	1.2
HIG/HOST SOFTWARE N = 28	1.0	1.0	1.0	1.1	1.1
WORKSTATION APPROACH N = 32	2.2	2.0	2.5	2.8	2.7

KEY: 1.0 = LOW LEVEL OF INTEREST
2.0 = MEDIUM LEVEL OF INTEREST
3.0 = HIGH LEVEL OF INTEREST

* WEIGHTED BY PREMIUMS

- The attractions of the workstation approach can best be seen by examining what is undoubtedly DCI's "worst case", i.e., a company that is not on the DCI public client list:
 - DCI didn't realize the extent of the company's non-ISO "quirks" and promised to do in six months what will take two years.
 - This has caused the company much embarrassment and expense.
 - DCI is also losing considerable money.
- However, DCI is making good on their promises and the company "still has positive feelings" toward DCI.
 - They describe DCI as "A comer, which will take off."
 - "It is a very impressive concept and implementation", although "At the bleeding edge of technology."
 - "No one else is even close, companies have no where else to go. This is the new wave, it's exciting."
 - The DCI claims systems is "more flexible, and easier to maintain" than McAuto's.
 - There is "Easy maintenance" in general.
- The company plans "A long term relationship" with DCI.
- The PMS client cited earlier went on to volunteer "Your client's opportunity is not a mainframe solution, another PMS, but should be based on a micro e.g.,
 - "Attack the back office function.
 - "Find a niche like ISI and expand.

- "There is a need for a neat work-in-progress product."

- A thing that was puzzling to INPUT in the course of the study was the high regard that many companies had for HIG's CLA (as reported by HIG and by several respondents) and the lack of enthusiasm for the host-based concept.
 - On the one hand, seeing a product can often be more convincing than a description. It is also true that most respondents not unnaturally think of PMS when host-based software is discussed.
 - On the other hand there are other factors that may explain this apparent anomaly:
 - Guests are often polite. One company that was cited by HIG as having expressed definite interest in using CLA was not only lukewarm about acquiring outside host-based software, but had recently almost contracted for EDS's workstation product.
 - CLA is very impressive, even awe-inspiring. However, even for most medium sized companies it is just too large a commitment (apart from the dollar investment); the quote regarding the maintenance burden in the previous section is representative of this feeling.
 - Finally, and most importantly, there is the impact of the personal computer revolution. INPUT believes that if this study had been conducted in 1981, there would have been a far more positive attitude towards HIG's offerings. Not only were they state of the art, but there were no other options that appeared viable. Now, the situation is quite different; CLA is still state of the art, but it is not alone. The sales success of DCI is an indication of this. For this reason INPUT believes that any expressions of interest in the CLA product made more than a year ago must be treated circumspectly.

C. WORKSTATION PLANS

- Only a quarter of respondents had firm workstation-related plans; of those with plans, most involved Data Concepts, Inc. (Exhibit IV-5). Note: One respondent was specifically chosen because of their DCI plans, so the sample slightly overstates DCI clients.
 - Half had general plans, i.e., the concept was fairly settled, but design and implementation was not.
 - Because of this, most respondents did not have a settled view as to the precise division of functionality between the central data base (which virtually all saw a need for) and dispersed workstations.
- This unsettled view of the division of functionality is related to uncertainty as to where in the organization to place workstations. Should they be located in branches for processing certain functions of all lines or centrally to process all functions in single lines?
 - Part of the reason why views are not clear is that there are, or have been, limitations on functionality due to hardware and software constraints. Most notably, DCI's product has been offered on a line of business basis in large part because of the limitations of the Texas Instruments host.
 - A DCI-like system that was hosted on a super-micro (e.g., Apollo, Pixel, Charles River, etc.) would be a very formidable package and would offer many more options to vendors and customers alike.

D. OTHER POTENTIAL AREAS

- Other potential areas of opportunity include agency-company linkage and a centrally-supported quotation function.
- Respondents are, in essence, waiting to see the boundaries of the agency-company linkage question more clearly before they commit themselves to a particular approach. They understand the potential importance of the issue, but are aware of too many, fuzzy options. (See Appendix D for more detail).

EXHIBIT IV-5

WORKSTATION PLANNING STATUS

	ENTITY SIZE (COMMERCIAL DIRECT PREMIUMS; \$ MILLION)					AVERAGE	
	\$15-49	\$50-99	\$100-299	\$300+			
						RAW	WEIGHTED*
APPROACH SELECTED	17%	40%	36%	20%		28%	23%
NO SELECTION MADE	83%	60%	64%	80%		72%	77%
GENERAL PLANS	16%	0	18%	60%		28%	48%
NO SPECIFIC PLANS	67%	60%	46%	20%		44%	29%
TOTAL	100%	100%	100%	100%		100%	100%

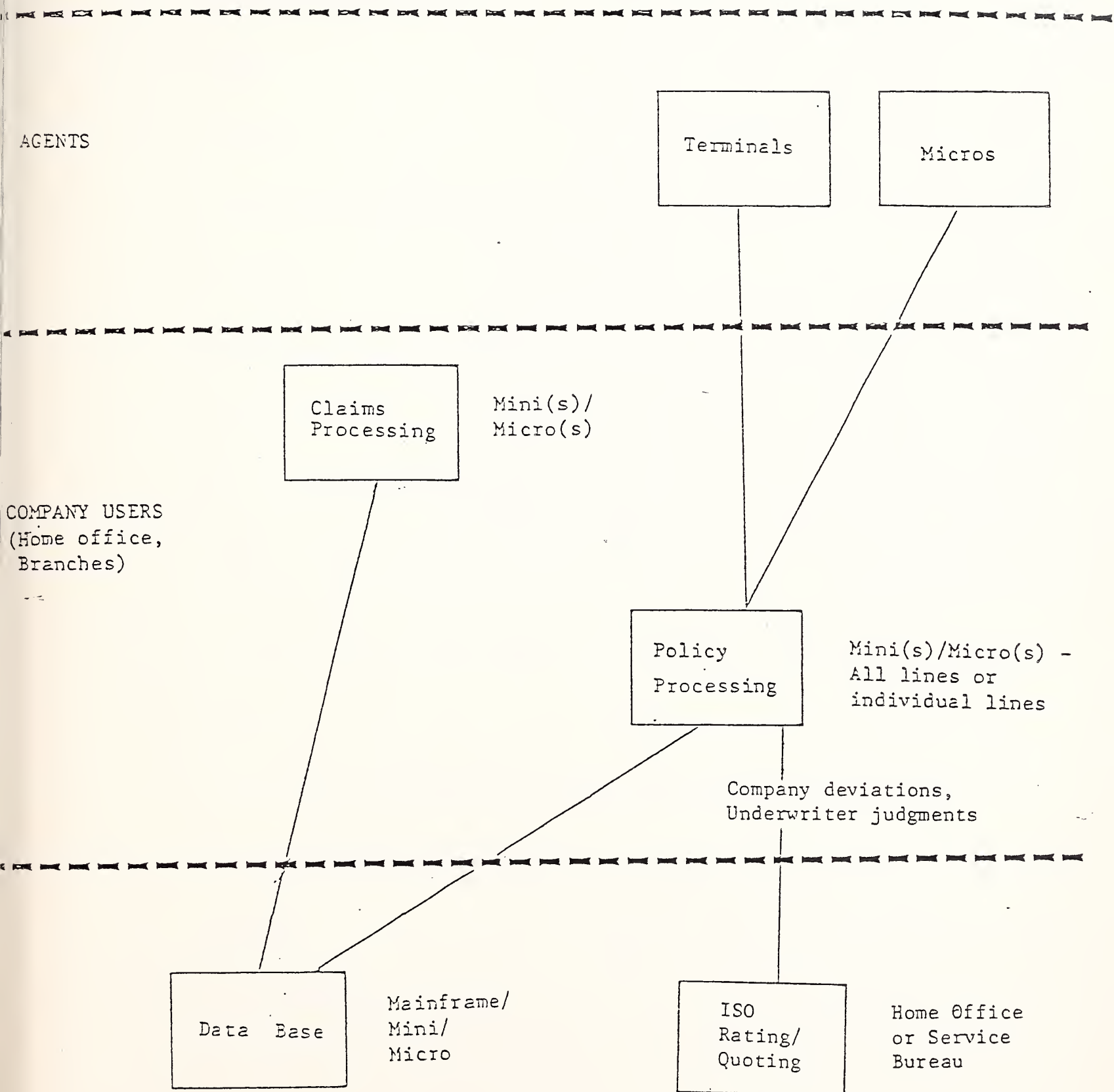
N = 32

* WEIGHTED BY PREMIUMS

- As part of the expanded interview scope, ISO-based rating/quoting was also discussed (see Exhibit IV-6). This subject was one that excited a less spontaneous interest, possibly because only a minority of respondents were active in underwriting.
- Many respondents did not view a critical need for a centrally-supported quotation service, either because they offered non-standard product, believed they got adequate service from a current vendor (e.g., PMS or ISI) or because they saw a need to interpret ISO rates themselves.
 - However, few of the respondents were underwriters.
 - Development of detailed product alternatives and subsequent discussions with underwriters might obtain a more positive response.

EXHIBIT IV-6

CENTRALLY-SUPPORTED QUOTES
(DIAGRAM USED IN LATER INTERVIEWS)



V. COMPETITIVE ENVIRONMENT

- The principal current vendors by product area include:
 - Mainframe-based software
 - . PMS
 - . Adtec
 - . X (To a life company's P&C subsidiary)
 - . In-house
 - Service bureau remote computing
 - . PMS
 - Small computer-based and workstation systems (Turnkey, essentially)
 - . PMS'S BPS (IBM 4300-based).
 - . DCI Data Conveyor (Texas Instruments, WICAT; possibly, IBM PC).
 - . Pallm
 - . EDS (similar in concept in DCI; under development).
 - . ISI quoting (Apple; soon, IBM PC)
 - . In-house
 - ISO rate supplying

. PMS

. ISI

. ISO

A. PMS

- PMS is, of course, the dominant force in information services aimed at the P&C industry. As noted earlier, it has not had substantial growth in its service bureau business.
- Its growth rate in licensees for its core personal line/commercial lines (PMS) product has not been impressive in recent years (Exhibit V-1). It has, however, been mining its customers intensively and moving into new revenue areas to keep up its revenue growth.
- Apparently to compensate for this, PMS has been expanding in three categories:
 - Insurance products
 - "Transition" products/segments
 - New business areas
- PMS is now offering new products in other P&C areas besides commercial lines.
 - Its small company turnkey (BPS) has proven popular, although, apparently PMS has had to reduce price significantly to be competitive in that market. (A reduction up to 50%, according to one prospect.)
 - A reinsurance product was offered, but is now apparently on hold.

EXHIBIT V-1
PMS GROWTH RATES

	<u>ANNUAL LICENSEE INCREASE</u>		
	<u>PMS</u>	<u>FINANCIAL SYSTEMS (FMS, SMS)</u>	<u>REVENUE GROWTH</u>
1980	17%	72%	38%
1981	11%	15%	51%
1982	11%	11%	49%

- PMS also has several P&C products under development:
 - An agency - company access product.
 - An insurance workstation that according to one report is a professional-oriented micro.
 - An agency turnkey system being developed in conjunction with the Florida agents association.
- More interesting are PMS activities in what can be termed transition product/segments, i.e., building on their core experience to be able to launch products into non-insurance areas.
 - Marketing its account reconciliation systems (ARS) to life/health companies is one example.
 - A potentially larger undertaking, that is not yet being pushed hard is the marketing of its financial management system (FMS) and security management system (SMS) to non-insurance companies.
 - PMS is also providing data base services, initially for P&C companies, e.g.,
 - Motor Vehicle department data
 - Commercial building data
 - Mechanics appraisal data (for automotive damage).
- Although, PMS publicly denies leaving the insurance segment, it has begun to sell what can only be described as a hodge-podge of products and services:
 - Systems software that is PMS-derived (hardware accounting, CICS management,) as well as that obtained as a Pansophic software licensee (PRO GRAMMER, MIS/OL, Library control system)

- Hardware sales/leasing (4300 and smaller).
- A disaster recovery service.
- As indicated earlier, PMS will be very fortunate if its commercial lines penetration equals that in personal lines. (Exhibit V-2). By these other expansion activities PMS appears to have recognized this. This should be a warning to vendors attempting to enter the P&C software market.
- Will PMS enter the DCI-like workstation market? It is unlikely in the near future. PMS will have the constraint of competing against itself if it were to introduce a workstation product. It would probably introduce a workstation product if the alternative were to watch a large part of the market slip away. It might wait too long, however.

B. DATA CONCEPTS, INC. (DCI)

- DCI is a totally different kind of company with a unique product.
 - While it has had high growth recently, it still employs fewer than 100 people.
 - It is totally committed to commercial lines automation, using the workstation approach (now offered on the WICAT micro).
 - Its software is proprietary, and targetted for the task of handling complex insurance transactions. Its system is, at the least, user-accessible.
 - There are holes in its offering, most notably commercial auto and a data base. The former is close to completion and the latter is being partly remedied by constructed "hooks" into the PMS data base.
 - DCI users, even partly disappointed ones, have only positive comments about the company and product (unlike, say, many PMS users).

EXHIBIT V-2

PMS POSITION

PMS- SHARE OF MARKET BY ENTITY SIZE (COMMERCIAL DIRECT PREMIUMS; \$ MILLION)					
	<u>\$15-49</u>	<u>\$50-99</u>	<u>\$100-299</u>	<u>\$300+</u>	<u>AVERAGE*</u>
PERSONAL LINES	20%	13%	38%	30%	30%
COMMERCIAL LINES					
CURRENT	0	0	19%	20%	18%
PLANNED	30%	13%	19%	20%	21%

* WEIGHTED BY PREMIUMS.

N = 54

- Appendix D contains more information about DCI and its users. (Note: INPUT interviewed DCI and discussed issues at length with its three principals. However, the analysis contained here has been taken exclusively from public data and from the five entities that were knowledgeable concerning DCI).
- Because of DCI's limited resources it is a sense "leaving money on the table." Several obvious areas of extension for their type of product are:
 - Branch office clones or derivatives.
 - An associated proprietary corporate data management system, as opposed to only providing "hooks" into PMS.
 - An agency interface.
 - Professional workstations (using data subsets from the corporate data management system).
- Electronic Data Systems (EDS) with whom DCI had has a prior business relationship is now beta testing a product that is remarkably similar in concept to the DCI product, although its execution in COBOL may turn out to have been a mistake.
 - EDS's entry into the market will produce significant pressure on DCI, but will also serve to further legitimize DCI's approach.
 - In INPUT's view, DCI's strengths should place it in an excellent position to complete with EDS (Exhibit V-3). However, DCI may have its limited resources stretched even further by this competition.

EXHIBIT V-3

DCI VS. EDS

<u>FACTOR</u>	<u>DCI</u>	<u>EDS</u>
INSTALLATIONS	APPROX. 12	1
SYSTEM MATURITY	MEDIUM	LOW
COMPANY SIZE	APPROX. \$5 MILLION	\$550 MILLION
COMPANY INSURANCE KNOWLEDGE	HIGH	MED/LOW
PRODUCT FLEXIBILITY	MED/HIGH	LOW(?)
PRODUCT ACCEPTANCE	MED/HIGH	LOW

VI. MARKET SIZE

- This market is peculiar in one helpful respect: Automation budgets are not fixed (in fact they are often not known).
 - This is consistent with the lack of quantification of automation benefits previously described.
 - Costs usually expressed in terms of number of staff assigned; many cases this reflects a headcount focus.
- Major changes in expenditures hardware/software/personnel) are often viewed from a capital spending perspective. However few sophisticated, quantified tests used.
 - The bottom line is that companies will often double their automation spending (as many have with PMS) with the expectation that the investment will eventually pay for itself.
 - In one fortunate respect PMS has conditioned the market to think in large numbers. Exhibit IV-1 shows the immediate additional expense that a company commits itself to by choosing PMS.
- Exhibit VI-2 shows the range of the IS budget as a percent of premiums in the insurance industry (including life and health), based on one of INPUT's continuing surveys.
 - The wideness of the range reflects differing commitments to automation and, equally important, different methods of constructing budgets.
 - The commercial lines automation expenditure data that was obtained from respondents generally matched that in Exhibit IV-2, i.e., spending was between 1% and 2% of premiums.

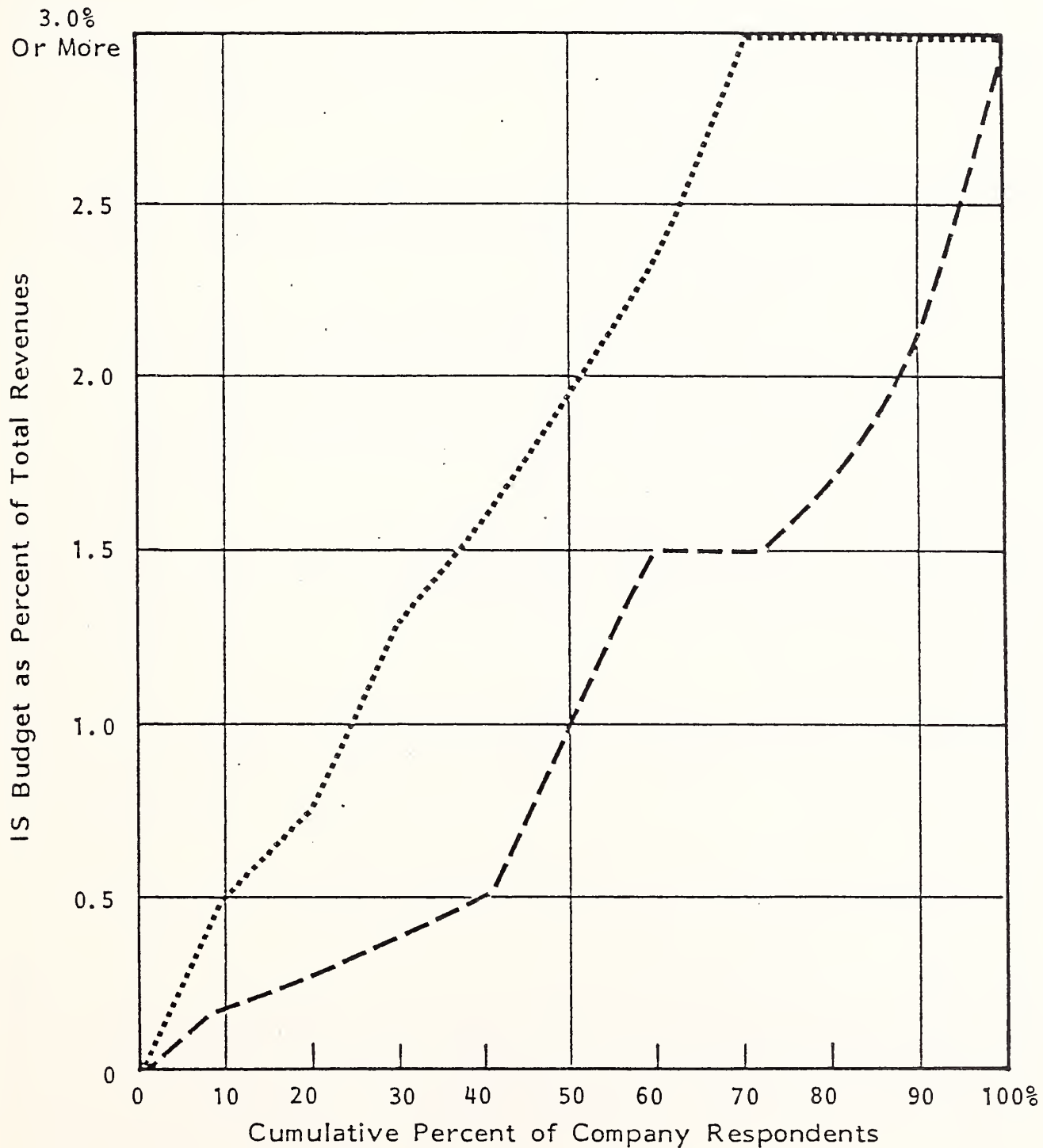
EXHIBIT VI-1

PMS FEES AS PERCENT OF PREMIUMS

<u>PREMIUM LEVEL</u>	<u>LICENSE FEE</u>	<u>TYPICAL MODIFICATIONS*</u>	<u>PMS MAINTENTANCE</u>
\$ 8 MILLION	2.5%	1.0%	0.8%
\$20 MILLION	1.5%	0.5%	0.4%
\$70 MILLION	0.5%	0.2%	0.1%
\$300 MILLION	0.2%	0.1%	0.05%

* INPUT estimate.

INFORMATION SYSTEMS BUDGET AS PERCENT OF TOTAL REVENUES
IN THE INSURANCE SECTOR (1981 DATA)



Key: Company Size = \$0 - \$199, --- \$200 and Over

NOTE: Revenues = Premiums (Direct Premiums for P & C)

SOURCE: INPUT Surveys

- In one key respect, commercial lines spending is different: Large companies spend a larger, not a smaller, proportion of premiums on data processing.
 - . This reflects an earlier and more comprehensive entry into commercial lines automation on their part.
 - . Larger companies often have more complex and expensive operating environments.
- Based on this data INPUT made estimates for commercial lines data processing expenditures in 1983. (Exhibit VI-3).
 - Total spending approximates \$800 million.
 - It is unlikely if the PMS share exceeds 1% of current commercial lines DP spending.
- By 1988 INPUT assumes that the data processing spending as a proportion of premiums will catch up with and then exceed that of the large companies. (Exhibit VI-4).
 - This reflects the smaller company's growing attention to automation combined with inability to realize the economies of scale open to a large company.
 - However, the large companies will still have the lion's share of the market.
 - These 1988 projections should be treated cautiously, however. INPUT did not believe it feasible to attempt to project the conflicting and perhaps cancelling effects of overall inflation, real premium changes, and the number of entities.

EXHIBIT VI-3

COMMERCIAL LINES DATA PROCESSING EXPENDITURES: 1983

	ENTITY SIZE (COMMERCIAL DIRECT PREMIUMS; \$ MILLION)				TOTAL
	<u>\$15-49</u>	<u>\$50-99</u>	<u>\$100-299</u>	<u>\$300+</u>	
COMMERCIAL PREMIUMS (\$ BILLION)	\$3.4	\$2.2	\$7.4	\$36.8	\$51.3
DATA PROCESSING EXPENDITURES					
PERCENTAGE	1.0%	1.0%	1.0%	1.5%	-
AMOUNT (\$ MILLION)	\$34	\$22	\$74	\$550	\$680
SEGMENT SHARE	5%	3%	11%	81%	100%

EXHIBIT VI-4

COMMERCIAL LINES DATA PROCESSING EXPENDITURES: 1988

	ENTITY SIZE (COMMERCIAL DIRECT PREMIUMS; \$ MILLION)				<u>TOTAL</u>
	<u>\$15-49</u>	<u>\$50-99</u>	<u>\$100-299</u>	<u>\$300+</u>	
DATA PROCESSING EXPENDITURES					
PERCENTAGE	1.5%	2.0%	2.0%	1.5%	-
AMOUNT (\$ MILLION)*	\$51	\$44	\$148	\$550	\$793
SEGMENT SHARE	6%	6%	19%	69%	100%

* NO ALLOWANCE MADE FOR CHANGE IN PREMIUM VOLUME OR INFLATION

- Given the fact that PMS's share of personal line automation spending can, even in larger companies, account for as much as 5-10% of ongoing DP spending, there is a large opportunity in commercial lines. This opportunity at least equals the size of PMS's current revenues (i.e., over \$40 million).
- The key factor here is that companies will be increasingly trading off personnel dollars for data processing dollars.
 - Routinely, companies considering major expenditures (e.g., PMS) assume significantly higher data processing-related expenditures.
 - PMS, for example, tells small and medium companies that they should be spending 2.5% - 3.0% of premiums on data processing.
 - Most companies have continued data processing growth during widespread cost reduction programs.
- Consequently, vendor sales do not have to come at the expense of the MIS budget.
 - The market, however, will be much more receptive to a workstation-oriented product than to traditional host-based software or a service bureau offering.

VII. CONCLUSIONS

A. Findings

- The commercial lines sector is an attractive market for information services.
 - Rapid environment changes are demanding responsive computer systems.
 - There is significant potential for acceptance of new products.
 - The untapped market is at least as large as current vendor shares (i.e., over \$40 million)
 - No vendor, including PMS, has a lock on the market especially in view of the market's receptivity to new products.
- One-quarter of entities are open to new approaches/vendors (Exhibit VII-1).
- There is a deep, underlying acceptance of the workstation approach.
 - Existing entrants, including DCI, are only scratching surface.
 - Except for small customers, PMS is not a dynamic force currently.
 - Other vendors are not significant factors.
- There is little market receptivity to the originally HIG proposed offerings, i.e., the service bureau business and CLA software.
- There is probably a developing market for information management, e.g.,
 - Insurance DBMS.
 - Accounting reports.

EXHIBIT VII-1

COMMERCIAL LINES AUTOMATION:
CUSTOMER-PERCEIVED OPPORTUNITIES

	ENTITY SIZE (COMMERCIAL DIRECT PREMIUMS; \$ MILLION)				
	<u>\$15-49</u>	<u>\$50-99</u>	<u>\$100-299</u>	<u>\$300+</u>	<u>AVERAGE*</u>
PERCENT OF COMPANIES UNSURE OF AUTOMATION SOURCE	25%	25%	26%	20%	21%

* WEIGHTED BY PREMIUMS.

- Profitability reports.
- Actuarial reports.
- The agency - company interface issue is in flux.
- Centrally-supported quotations could be an opportunity. It is not a well-perceived need now.

B. RECOMMENDATIONS

- HIG should investigate offering a loosely coupled front and back end product.
- The front end options which should be explored include:
 - Downsized HIG components on a 4300 or XT/370.
 - Newly-generated code based on CLA experience for a micro.
 - Acquisition of an existing front-end product (e.g., DCI).
- The back end options include:
 - Offering the CLA data base as it now stands.
 - Offering a subset of the CLA data base architecture.
 - Designing a data base structure derived from CLA.
- The front and back ends should be compatible, but acquirable separately by customers, e.g.,
 - HIG front end with PMS data base.

- DCI front end with HIG data base.
- The question of the location of functionality within a set of product offerings, especially for coding and policy issuance, is a critical one.
 - DCI is very successfully offering coding and policy issuance as part of a front end, while ISI is not offering a product beyond rating (at least at this time).
 - Many potential purchasers are not yet clear what their final needs will be.
 - Ideally, a product would offer the option of location (i.e., location in either the front or back end). However, this may not prove to be practical or necessary.
 - INPUT recommends that HIG lay out the feasible technical options in more detail and then approach a small set of potential customers to see what their needs are.
- HIG should investigate offering an agency interface for the front end, but delay major commitments until market direction is clearer.
- HIG should specify components of a product providing centrally supported quotation data. Steps to achieve this include:
 - Drawing on HIG knowledge to build alternative product specifications.
 - Defining the service further by consulting with knowledgeable external sources.
 - Learning ISO plans and investigating the amount of further value that could be added by a vendor.
 - Testing the market's receptivity to one or more potential product offerings.

- 1a. What is the current status, generally, of your company's personal lines automation?
- 1b. What changes are planned?
2. What is the current status of commercial lines automation?
 - o Which lines are automated?
 - Which functions (by line)?
 - What type of automation (batch, on-line interactive)?
 - What hardware environment (vendor; mainframe, distributed, out side service)?
 - What is the source of software (in-house, contract, skeleton, package, other)?
 - o What is the level of satisfaction? (Break out by line/function, if significant)
 - Reasons for dissatisfaction?

3a. What are the plans for future (i.e, next three years) commercial lines automation?

- o By line/function
- o Type and hardware environment
- o Software source

3b. What are the reasons for planning/considering further automation?

- o What benefits are expected? (Details)
- o How important are quantifiable dollar benefits (e.g., costs, turnaround) vs less quantifiable benefits (e.g., accuracy, customer satisfaction).

4a. How important is it to you to have all of your commercial lines of business equally automated (low to high importance)?

4b. How important is it to you that each of the following commercial lines functions be fully automated (low to high importance)?

- o Quoting/rating

- o Coding

- o Policy issuance

- o Endorsements

5. How important (ranked low to high, with rationale) is it that commercial lines computerized systems be integrated with:

- o Personal lines computer systems?

- o Other administrative systems (e.g., accounting, investments, etc.)?

o MIS

6. What is the current operating ratio for your commercial lines business?

_____ %

o What are your goals for reducing this?

o How will it be achieved?

o How large a role will automation play?

7. How much do you expect to spend in each of the next three years on commercial lines automation (broken out between development and on-going costs)?

Development

On-Going

1985

1986

8. I am now going to hand you a sheet (#1) that describes the main features of a proposed timesharing system.

- o What is your general reaction to this proposed service?
- o Which of the areas covered would be especially pertinent to your company?
- o Which areas would be of relatively little interest to your company?

9a. How likely would you be to use this service for any of your business?

Assuming the price is reasonable).

Would not use (), Unlikely (), Might Use (), Likely (), Very likely ()

o Why

If "would not use" or "unlikely", go to question 10

9b. For which lines/functions?

o Would you try some lines/functions and then expand?

o When would you start, how long would you use it?

- What would be a desirable contract length?

- o What benefits would you obtain? (prompt only if necessary) How large would they be? Which would be the most important?
- 9c. To what extent would you want your agents to be on-line to your data base?
- 10. On the next sheet (#2) that I will hand you are estimates of what typical companies might pay annually for using the service based on the amount of premiums handled.
 - o Does the overall level of the pricing seem:

Far too low (), Too low (), About right ()

Too high (), Far too high (), Don't know ()
 - o Why?
 - o What is the basis for comparison? (E.g., manual transaction costs)

(If in-house costs: how accurate are they?)

- o How would you feel toward pricing, if the service reduced costs equivalent to 1% of premiums handled by the service?

11. On this sheet (#3) are names of organizations that could potentially offer this kind of service. Would you feel more comfortable doing business with certain companies on this list than other? (Discuss)

12a. Another option would be for your company to acquire the software itself rather than use the timesharing service. All the functions and features described for the timesharing service would remain the same. The software would run on IBM equipment.

12b. What would your level of interest be, generally, in acquiring software rather than utilizing a service?

13a. The software could be supplied in one of two ways.

- o You would be responsible for all software support and modification.

- o The vendor would provide ongoing support and maintenance to the "core" sections of the system. You would be able to modify other sections of the system (e.g. rates, edit logic, etc.)

Your tradeoff would be having a great deal of flexibility and control vs. the responsibility for maintaining a large, complex set of programs.

13b. Which option appeals to you most?

- o Why

- o What levels of training and maintenance would be needed initially?
Ongoing?

13c. How likely would you be to acquire this kind of software?

Would not use ()

Unlikely ()

Might acquire ()

Likely ()

Very likely ()

- o What lines/functions would you use the software for?

- o What benefits would you expect to obtain?

- o If your major competitors were to acquire this, how would it affect your plans?

o When would you want to start using it?

14. Are you acquainted with the commercial lines software that PMS will be offering in the near future?

YES () NO ()

o How does the offering that I have described compare generally?

o Are you acquainted with PMS' likely pricing structure? YES () NO ()

If YES: Does that pricing approach appear reasonable? (Detail, including alternatives)

If NO: Does a one time license fee of between \$ _____ and \$ _____ (depending on number of lines included) seem,

Far too low (), Too low (), About right ()

Too high (), Far too high (), Don't know ()

- o Why?

- o What is the basis for comparison?

(If in-house costs: how accurate are they?)

- o How would you feel toward pricing, if the software reduced costs equivalent to 1% of premiums handled by the software?

15. For those with interest in either the software or service version:

- First, I will contrast the "Mainframe (Host) Approach" with the "Workstation Approach" (see attached diagrams). I will be looking for

- Their general reaction.

- How these approaches fit into their current plans.

- Which approach they see predominating for themselves as well as for the industry generally.

- How they see functions as being allocated between users and the central data processing area.
-

- Whether these functions should be constructed internally, or procured externally.
-

- Their knowledge and evaluation of current suppliers.

- Then I will get their reaction to having a centrally supported quotation function added to the workstation approach (as shown in the third attachment). /

- Their general reaction.

- How these approaches fit into their current plans.

- Which approach they see predominating for themselves as well as for the industry generally.

- How they see functions as being allocated between users and the central data processing area.

- Whether these functions should be constructed internally, or procured externally.

- Their knowledge and evaluation of current suppliers.

- For respondents that see vendors as playing a role, I would get their reaction to the list of potential vendors previously developed.

What would be the process for making an acquisition?

Who would be involved in making the recommendation?

In the final decision?

16. What is your company's key objectives in the next several years and how would commercial lines automation further them?
17. What industry trends do you see generally in the next 5 years and what are the relations to commercial lines automation?

PARK 80 PLAZA WEST-1, SADDLE BROOK, NEW JERSEY 07662

(201) 368-9471

October 31, 1983

Mr. Edward Shires
Assistant Vice President
Hartford Insurance Group
Hartford Plaza
Hartford, CT 06115

Dear Ed:

As we agreed last Thursday, I am revamping the materials which I will be showing to and discussing with respondents:

- First, I will contrast the "Mainframe (Host) Approach" with the "Workstation Approach" (see attached diagrams). I will be looking for
 - Their general reaction.
 - How these approaches fit into their current plans.
 - Which approach they see predominating for themselves as well as for the industry generally.
 - How they see functions as being allocated between users and the central data processing area.
 - Their knowledge and evaluation of current suppliers.
 - Whether these functions should be constructed internally, or procured externally.
- Then I will get their reaction to having a centrally supported quotation function added to the workstation approach (as shown in the third attachment). I would go over the same general issues as those under the preceding bullet.

October 31, 1983
Page 2

- For respondents that see vendors as playing a role, I would get their reaction to the list of potential vendors previously developed.

I will test this on interviews this week and modify as needed. I would appreciate any reactions that you or other members of the Task Force might have.

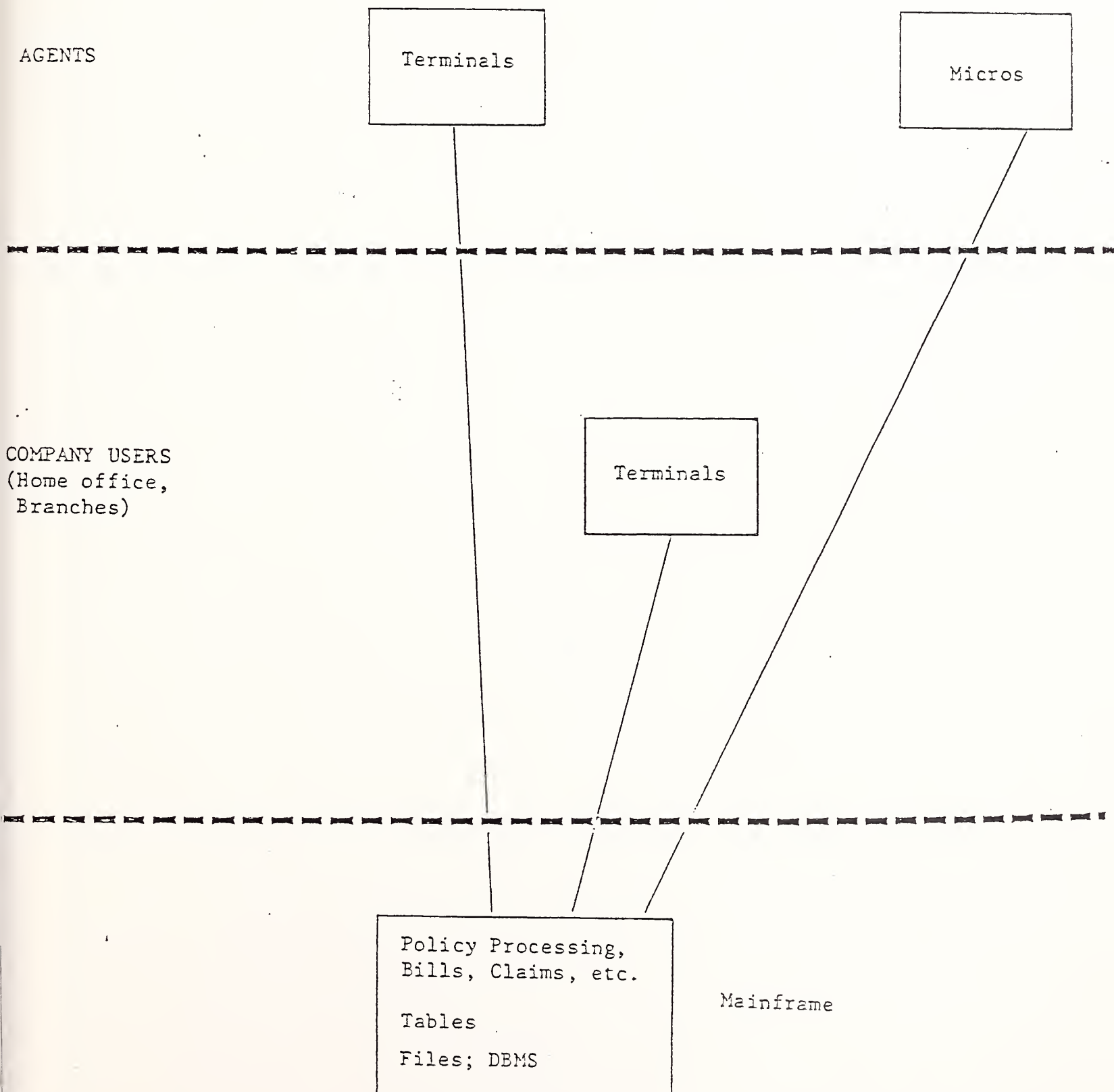
Sincerely,



Thomas O'Flaherty
Principal Consultant

TOF:pjk
Enclosure

MAINFRAME (HOST) APPROACH



WORKSTATION APPROACH
(e.g., new IBM PC/370)

AGENTS

Terminals

Micros

Claims
Processing

Mini(s)/
Micro(s)

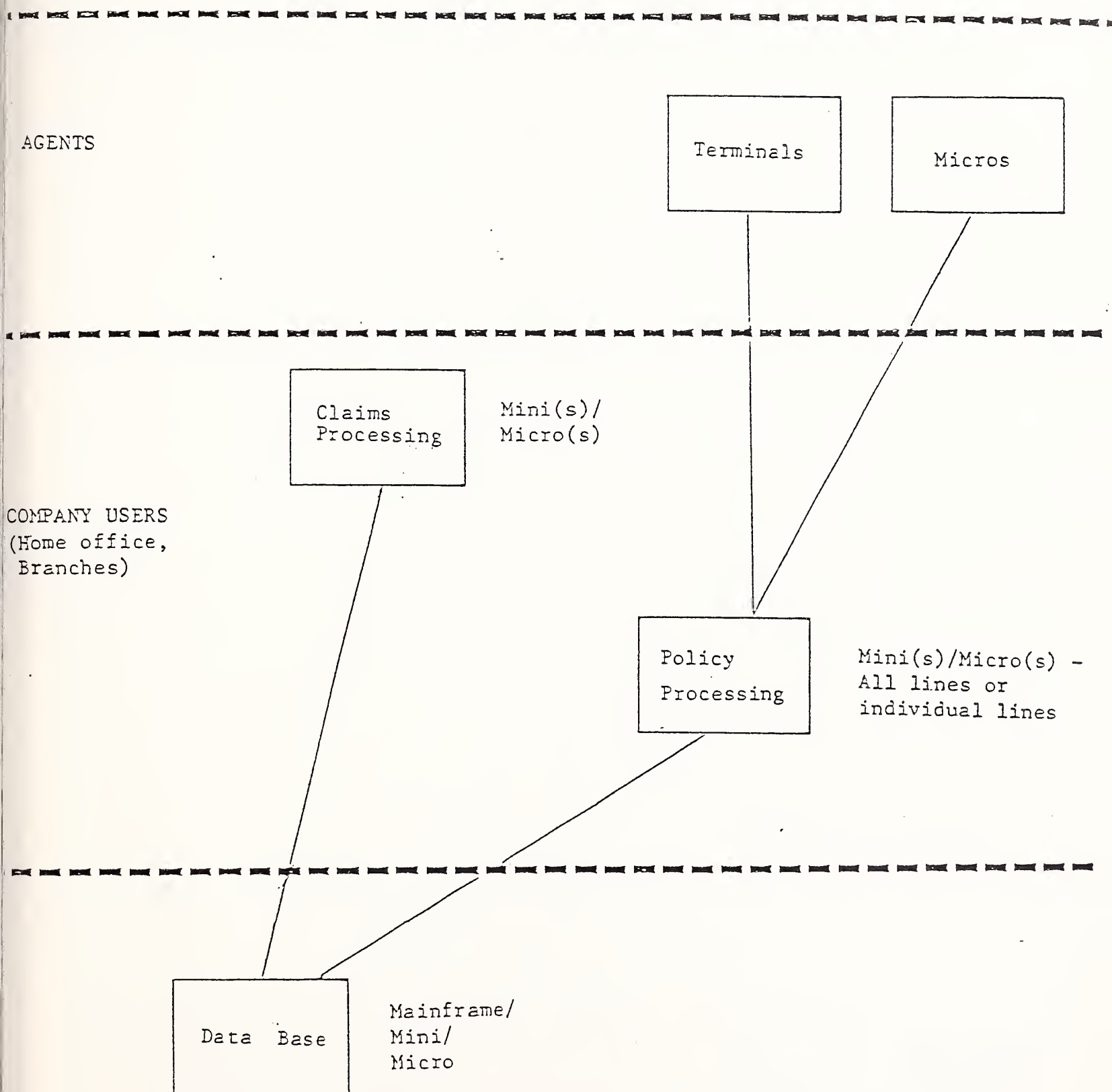
COMPANY USERS
(Home office,
Branches)

Policy
Processing

Mini(s)/Micro(s) -
All lines or
individual lines

Data Base

Mainframe/
Mini/
Micro



WORKSTATION APPROACH

(e.g., new IBM PC/370)

CENTRALLY-SUPPORTED QUOTES

AGENTS

Terminals

Micros

Claims
Processing

Mini(s)/
Micro(s)

COMPANY USERS
(Home office,
Branches)

Policy
Processing

Mini(s)/Micro(s) -
All lines or
individual lines

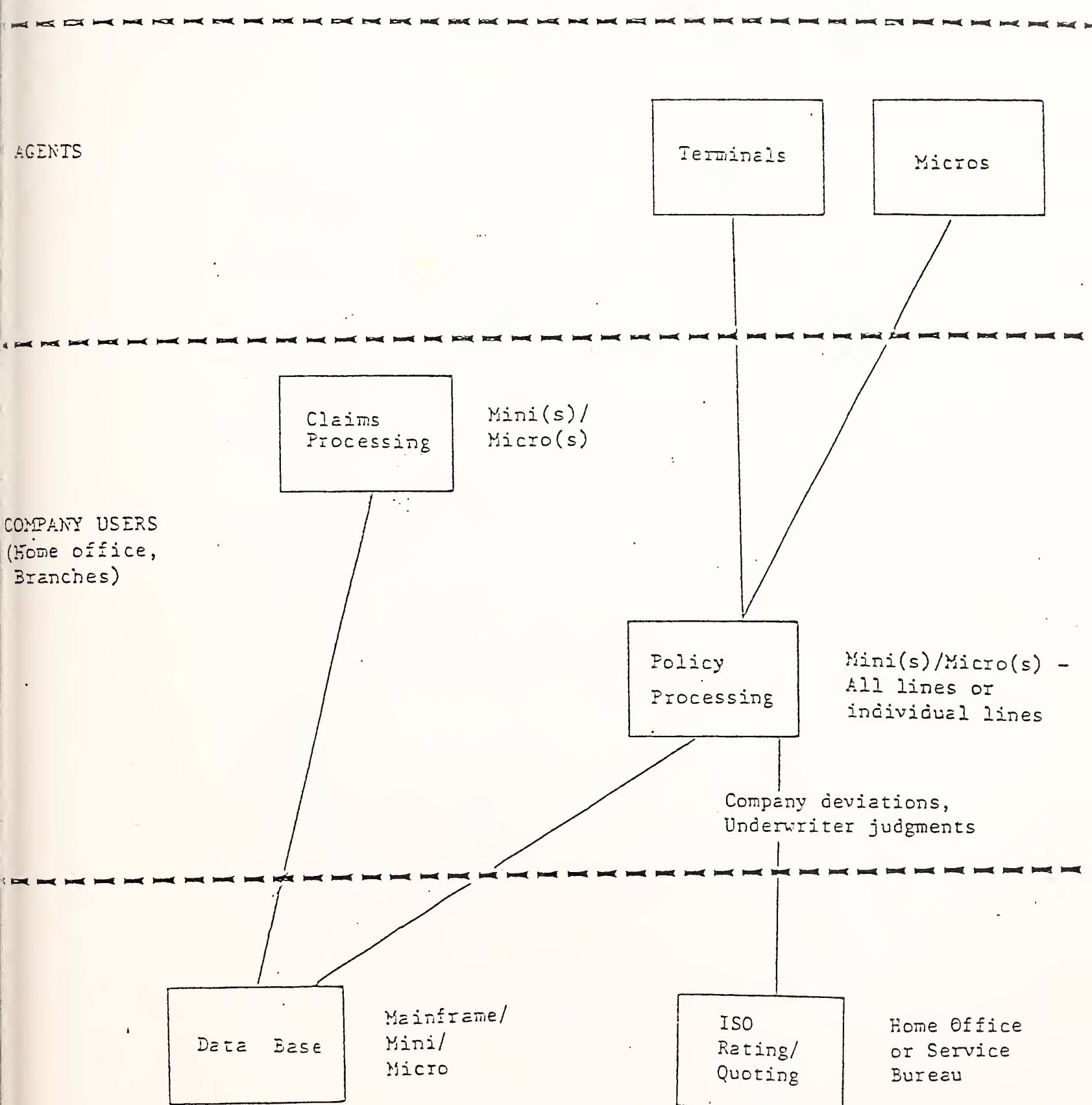
Company deviations,
Underwriter judgments

Data Base

Mainframe/
Mini/
Micro

ISO
Rating/
Quoting

Home Office
or Service
Bureau



APPENDIX C: COMPANIES INTERVIEWED

AETNA**

AHMANSON*

AID INSURANCE*

AMERICAN FINANCIAL

AMERICAN CONTINENTAL*

DIXIE*

AMERICAN MUTUAL LIABILITY**

ANDOVER**

ARMCO**

NORTH PACIFIC*

ATLANTIC COMPANIES**

AUTO OWNERS**

BERKSHIRE HATHAWAY

KANSAS FIRE AND CASUALTY*

NATIONAL INDEMNITY OF OMAHA*

CAPRI*

CHUBB**

CIGNA**

CINCINNATI FINANCIAL*

CONTINENTAL WESTERN*

COVENANT**

CRUM AND FORSTER**

L.W. BEAGLER*

*=TELEPHONE INTERVIEW

**=ON-SITE INTERVIEW

DODSON**
ELECTRIC INSURANCE**
EMPLOYERS MUTUAL*
FEDERATED MUTAL*
FINANCIAL SECURITY*
GENERAL ACCIDENT**
GRANGE*
GRAIN DEALERS**
FRANK B. HALL**
HANOVER**
HARLEYSVILLE**
HERITAGE**
INDIANA INSURANCE**
LIBERTY MUTUAL**
MICHIGAN MUTUAL*
MOTORISTS MUTUAL*
NATIONAL-NEDERLANDER
FIDELITY SOUTHERN (AND ASSOCIATED COMPANIES)*
NATIONWIDE**
OLD REPUBLIC**
PENN MUTUAL**

*=TELEPHONE INTERVIEW

**=ON-SITE INTERVIEW

PREFERRED RISK*

PUBLIC SERVICE**

RANGER*

ROCKWOOD**

ROYAL**

SENTRY**

SHELBY MUTUAL**

TELEDYNE

TRINITY UNIVERSAL (AND ASSOCIATED COMPANIES)*

TOKIO MARINE AND FIRE**

UNITED FIRE AND CASUALTY*

WESTERN INSURANCE*

WESTERN PREFERRED*

WESTERN WORLD**

*=TELEPHONE INTERVIEW

**=ON-SITE INTERVIEW

APPENDIX D: AGENCY - COMPANY LINKAGE ISSUE

- The following are comments by respondents on agency-company issues. They have been classified by INPUT under the following categories:
 - Importance generally.
 - Interface issues.
 - Type of information exchange foreseen.
 - Hookups.
 - Effects of linkage.
- The letter in parentheses refers to the size of the responding entity, i.e.,
 - A = \$15-49 million
 - B = \$50-99 million
 - C = \$100-299 million
 - D = \$300 million and over

AGENCY - COMPANY LINKAGE: IMPORTANCE

- TIEING TO AGENTS WILL BE MORE AND MORE IMPORTANT (C).
- VERY IMPORTANT ISSUE (A).
- LOOKING AT INTERFACE ISSUES VERY CAREFULLY (C).
- A KEY BUSINESS ISSUE (D).
- THE OVERWHELMING INDUSTRY ISSUE (D).
- MAY BE NICE, BUT HAVE NOT CONSIDERED (A).
- COSTS A PROBLEM (D).

AGENCY - COMPANY LINKAGE: INTERFACE ISSUES

- STANDARIZATION COMING (C).
- CAN NOT WAIT FOR STANDARDS - MAY NEVER EMERGE (D).
- WORKING ON OWN INTERFACE TO ALL MAJOR TURNKEY SYSTEMS (C).
- WILL INTERFACE WITH ANYONE (D).
- USING VENDOR FRONT END FOR AGENCY INTERFACE (A).
- PMS WILL MAKE IT EASIER TO TIE INTO IVANS (A).
- IVANS MAY NOT BE THE SOLUTION (A).
- WANT ON-LINE HOOKUP, GOING TO TAKE PART IN IVANS (C)

AGENCY - COMPANY LINKAGE: TYPE OF INFORMATION
EXCHANGE

- THERE WILL BE MORE LOCAL PROCESSING (D).
- SOME AGENTS ALREADY HOOKED DIRECTLY INTO SYSTEM (D).
- LARGER AGENTS WILL HAVE DIRECT ACCESS TO FILES AND ISSUE POLICIES (C).
- DOWNLOAD DATA NOW (C).
- AGENTS WILL BE ACCESSING COMPANY FILES SOON, HOPEFULLY, JUST FOR INQUIRY (A).
- DON'T THINK MANY AGENTS KNOW WHAT THEY WANT (A).

AGENCY - COMPANY LINKAGE: HOOKUPS

- MOST COMPANIES WILL EVENTUALLY INTERFACE WITH AGENTS (A).
- SEVERAL PILOTS UNDER WAY (D).
- PLANNING TO TIE DIRECTLY TO 100 KEY AGENTS (D).
- ALREADY 1700 TERMINALS IN DISTRIBUTION NETWORK (D).
- GENERALLY, NO FUTURE FOR PROPRIETARY TERMINALS (D)

AGENCY - COMPANY LINKAGE: EFFECTS

- DIRECT ACCESS IMPORTANT FOR AGENT EDUCATION (D).
- TECHNOLOGY WILL GIVE AN EDGE (C).
- COMPETITION WILL EMERGE BETWEEN AMOUNT OF "USABILITY" OF COMPETING SYSTEMS (D).

APPENDIX E: DATA CONCEPTS, INC. INFORMATION

- Attached are copies of DCI-related materials.
 - Data Conveyor system overview.
 - Data Conveyor system concepts.
 - SIMP!LE productivity tool overview.
 - Two 1983 articles by DCI users.

DATA CONVEYOR

COMMERCIAL LINES POLICYWRITING SYSTEMS

Table of Contents

- I. Introduction and Background
- II. Commercial Lines Insurance Systems
- III. Support Services
- IV. Table Management
- V. Benefits

I.

I N T R O D U C T I O N

A N D

B A C K G R O U N D

Lines of Business

Data Conveyor Policywriting Systems presently include SMP and related monolines (Commercial Fire and Allied Lines, Time Element, General Liability, Inland Marine, Fidelity and Crime, and Glass) Workers' Compensation and Commercial Automobile. Other insurance systems currently in phased development include Claims Administration, and Accident and Health Claims.

Maximizes Operator Productivity

The Data Conveyor System addresses the entire Commercial Lines rating process, including setup and manual rules, rate and factor lookup, premium calculation, premium statistical coding, form and schedule selection and printing, and subsequent transactions.

In addition,

... Optional custom-tailored prompts provide on-demand, on-line assistance for new operators, but permit experienced operators to complete data entry at their own pace.

...The Data Conveyor can be designed to "assume" frequently used data values and permits the operator to override system-generated values. This feature makes data entry even more automatic.

...The Data Conveyor System does more than determine the next processing step: it performs all next steps until it needs new data or decisions from the operator.

Reduces Need for Experienced Raters

Data Conveyor Systems also offer significant advantages in cost and time required for training. In one installation which handles multiperil rate, quote and issue, operators who received four to six weeks of training on the Data Conveyor use the system to complete rating procedures that could otherwise require from six months to more than two years of training.

**All Coverages/
Variable Levels
of Automation**

Coverages and perils are automated upon client request. Rate development may be fully automated (the system stores a maximum number of rating procedures and rate tables), semi-automated (the system stores and maintains the maximum number of rating procedures, but rates and/or factors are obtained and entered manually), or automated to only a limited degree (rate look-up and premium determination are completed off-line and entered manually. The system applies appropriate policy minimum premium rules and includes the results in policy premium totals).

System Generated Codes

The Data Conveyor System develops and prints premium statistical coding information from data entered for policy production; no additional data entry is required to produce coding documents.

**Premiums Calculated
On-Line**

Premiums are calculated on-line. To support the underwriter's ability to examine "what-if" variations for a single transaction, the Data Conveyor System incorporates extensive correction facilities and Quote-to-Quote capability. Both are described below.

**Operator Sensitive
Screens**

Data entry screens on the Data Conveyor System are designed to include only those fields needed to generate pertinent policy data, according to accepted industry and company requirements. Screens can be tailored to conform to the company's existing paper forms, providing familiar formats for the operator.

In addition,

**Fewer Screens
Required**

...The Data Conveyor's conditional routing capability enables one screen to perform multiple functions. A significant benefit of field-by-field processing, conditional routing can substantially reduce the number of screens needed for a complex system by altering the normal processing path through field calculations.

**Redundant Data
Entry Eliminated**

...The operator never enters the same data twice: the system "forwards" existing data items where required and continues to create new data items through calculations, data definition or data manipulation, until it needs additional information.

...Screen completion is accomplished most efficiently because the cursor stops only in those fields required for the specific transaction in process.

100% Editing On-Line

Error detection and correction is performed on-line at the point of data entry, before the system uses the data item in any subsequent calculations. In addition to current field edit checks, editing can be performed on a cross-field and a cross-screen basis.

**Comprehensive
Correction Facilities**

In addition to thorough on-line editing of new data items, the Data Conveyor supports extensive on-line correction facilities. Correction features include the ability to make single or multiple changes to current, previous, or subsequent screens, and the ability to add or delete entire screens (records). When corrections have been made, the system automatically reprocesses forward, re-editing and recalculating data where required.

**Automatic
Reprocessing**

**Multiple Quote
Iterations**

Multiple quotations are supported through the Data Conveyor's Quote-to-Quote facility: after a base quote has been created, additional variations can be produced by keying changes only. Total premium calculations may be completed immediately or deferred, at the operator's direction. Hard copy may be produced on an individual transaction or batch (spooled print) basis.

When a quote is accepted, the policy may be produced directly from the quotation - including any final changes - through the Data Conveyor's Quote-to-Policy facility.

Support Services

The Data Conveyor System currently supports Inquiry, Scratchpad, Work In Process Status, Account, Producer, and Class File Maintenance.

**All Policy Life-Cycle
Transactions**

The Data Conveyor System supports

- Quotations
- Binders
- New Business
- Renewals
- Rewrites
- Reinstatements
- Cancellations
- Endorsements
- Premium Audits

In addition, the system supports

- ...Statistical Coding: Statistical data is extracted and printed from data entered for policy production. No additional data entry is required to produce coding documents.
- ...Claims Administration functions (in process)
- ...Collection Records
- ...Conditional Document Routing via Mainframe: Selected data from partially processed transactions can be formatted and passed to the company's central processor (i.e., mainframe) for verification against central data files. The return transmission may contain error messages, flag transactions for rerouting, etc.

Security

In most Data Conveyor installations, on-line access to production systems is controlled by user ID and an optional passcode.

Although additional security measures can be added to a Data Conveyor, system security features will generally reflect the scope and specific requirements of an individual installation.

Data Integrity

If it is desirable to prevent certain data from being changed after the original policy is issued, keyboard locks can be added to the logic for those fields which should not be altered.

"As-Of" Coverage Verification

After the original policy document is issued, all subsequent transactions are added to the policy file as "data difference records."

The difference records which are added to the policy file include only those data items which were changed, and control data items such as the effective date and sequence number of the change. When an operator inquires into the status of the policy on a specified date, the system automatically combines accumulated net changes made to the policy after its original issue, with items from the original records which have not changed since the policy was issued. Storage of only changed data items rather than changed screens reduces the storage required to maintain a history file to a minimum.

Automated Policy and Statistical Records

The Data Conveyor System accommodates automatic policy document and statistical record production on either an immediate or deferred (spooled) basis.

The Data Conveyor automatically determines the appropriate forms to be printed according to the unique coverages for each transaction, and prints only the required forms or blocks of data.

Formatted data may also be passed from the Data Conveyor to a company's mainframe, to update a centralized data base on a company-specified schedule.

The range of policy and statistical reporting documents supported include

- Quotation Coverage Explanation
- Declarations Pages
- Coverage Schedules
- Rating Worksheets
- Premium Recap
- Endorsement Schedules
- Endorsement Forms
- Renewal Certificates
- Cancellation Notices
- Premium Payment Notices
- Commission Schedules
- Agent Compensation Coding
Worksheets
- Premium Audit Physical & Voluntary
Worksheets & Statements
- Premium Statistical Coding
Worksheets
- Statistical History Cards
- Forms Pull Lists

Output can be produced using preprinted and/or blank stock.

**Architecture Satisfies
Unique Commercial
Requirements**

Data Conveyor Systems provide a complete policyhandling workflow environment through on-line interactive transaction processing. Editing is performed field-by-field at point of entry, before new data is used in system calculations.

In addition,

...By routing processing to the appropriate data fields, and continuing to calculate and process data until it needs more information, the system can perform up to 80% of the processing workload.

...With conditional routing, the cursor moves only to those fields required for the transaction in process. No data is created that is not relevant to the transaction.

...The system handles intermixed text and data, allowing unique transaction data to be inserted in standard text.

...There is no inherent software limit to the number of locations that can be included in a single policy.

...Workflow routing and work station configuration can be adjusted according to changes in processing or office procedures.

Table Management

Table creation and maintenance is accomplished with a set of SIMPL!E software programs. Although tables are created in the Implementer's Mode of the SIMPL!E System, the dialog used to create tables is easily understood by a non-technical person.

If a client company elects to maintain its own tables internally, but chooses not to assume maintenance of the Data Conveyor application programs, the table programs can be made accessible with the production system for in-house use by the client staff.

Standard Operating Environment

SIMPL!E software is inherently hardware-independent, and can be transported to new equipment by rewriting the program that interfaces SIMPL!E to the host operating system.

The Data Conveyor System is presently installed on the Texas Instruments (TI)990-12 minicomputer, and the WICAT supermicrocomputer (Systems 150 and 200).

The operating system for the TI-990 is the TI-DX10; for the WICAT, MCS. SIMPL!E software operates as a task within the host computer.

SIMPL!E Software is based exclusively on the TRAC[®] language. TRAC itself is currently being rewritten in "C" language. Upon completion of this process, SIMPL!E will be directly transportable to any computer that uses a "C" compiler.

All Data Conveyor applications programs are implemented exclusively in SIMPL!E. SIMPL!E software was designed specifically to provide flexibility, conciseness and ease of maintenance for applications which have proved difficult to automate with conventional programming languages. Data Conveyor Systems will, however, interface with conventional systems.

Documentation

Because Data Conveyor Commercial Lines Policywriting Systems are customized according to the unique requirements of each client company, the documentation for each system is also unique.

Data Concepts provides an Operator's Guide for the users of each new installation. System documentation also includes hard copy of the application specifications or "prescripts" developed for each Data Conveyor system. Because prescript documentation is built into SIMPL!E software, hard copy documentation always reflects the most current version of the application.

Those companies that license SIMPL!E to maintain their own applications receive copies of the Implementer's Guide to the SIMPL!E system.

II.

COMMERCIAL LINES
INSURANCE SYSTEMS

II. Commercial Lines Insurance Systems

Data Conveyor Insurance Systems are customized to a client's specific procedures and book of business; therefore, coverages, rating plans and automated ISO rating tables reflect the requirements of each system.

New coverages, rating procedures and states are automated as requested for new systems, or to augment existing systems.

Data Conveyor Commercial Lines Policywriting Systems currently provide on-line, interactive policy processing support for

- SMP and associated monolines:
 - Fire and Allied Lines
 - Time Element
 - General Liability
 - Inland Marine
 - Glass
 - Fidelity and Crime
- Workers' Compensation
- Commercial Automobile

The flexibility of the Data Conveyor makes it possible to incorporate even non-automated lines into the automated production system. With a Miscellaneous Coverage Screen, operators can enter descriptive and manually calculated rating data for specified lines. Data keyed in with miscellaneous coverage screens can then be incorporated into policy totals and printed documents.

Additional systems which are presently in development at Data Concepts include

- Claims Administration (All ISO lines)
- Group Accident & Health Claims

Variety of
Rating Plans

In general, the Data Conveyor System supports most of the ISO-based rating plans for SMP and associated monolines, NCCI rating plans for Workers' Compensation, and ISO and SRP (Supplementary Rating Plan) for Commercial Automobile.

In addition, Data Conveyor Systems support individual company modifications to standard plans, as well as the development of special company packages.

Classification
Phraseology

...SMP

Much of the descriptive and classification phraseology inherent in Commercial Lines rating can be automated on the Data Conveyor System, eliminating the associated typing required for document preparation. As key class and peril codes are entered and coverages selected in response to system prompts, the system generates full descriptive terminology that is displayed and incorporated into printed policy documents.

...Workers' Compensation

To the extent that a company requests tabling of class codes and descriptions, the system will automatically display the appropriate class description phraseology when the operator enters a class code and multiple description code if applicable. The phraseology will be incorporated, as required, into printed policy documents. Non-tabled phraseology - and any newly issued codes and descriptions which have not yet been tabled - may of course be entered manually.

III.

S U P P O R T

S E R V I C E S

III. Support Services

Inquiry

Data Conveyor Systems currently provide ...The ability to review original data entry screens (declarations, worksheets, schedules, etc.) as of any date in the account history.

A scheduled enhancement to the current detail level inquiry will allow the operator to review summary (policy level) data for processed transactions.

Diary

...The ability to schedule processing or file review functions on an automatic calendar is currently in development. The Data Conveyor's diary mechanism will schedule such transaction activities as review dates, check issue, etc. according to a company-specified calendar. Diary scheduling will accommodate business and/or calendar day cycles. Sort criteria for diary display are specified by the company.

Scratchpad

...The ability to incorporate miscellaneous non-automated coverages, add processing or routing instructions for internal use, etc., are provided by miscellaneous screens. Miscellaneous data may be accessed through on-line inquiry, or obtained as hard copy with policy documents.

Information Requests

...The ability to access policy data, financial data, etc., from files which are not physically part of the records for a current transaction, i.e., inquiry into a file of service providers performed from an individual claim record.

This facility is currently under development.

Work in Process Status	...The ability to determine the current status of a transaction, including its processing status by Work Station (1, 2, etc.) or file (IN PROCESS, IN FORCE, etc.), its position in a work station queue, and error conditions which may have caused the policy to be suspended during background processing.
Account	...The ability to ensure that certain "master-record" data is consistent within a multiple-risk account.
Producer	...The ability to create, maintain and inquire against a file of producers which contains such data as name and address, license data, identification numbers, commission data, etc. On the Data Conveyor, producer files may be implemented using key index files to access producer data stored on the company's mainframe.
Security	Access to the Data Conveyor System and policy files is currently restricted by user (ID) account and optional passcodes.
Class File Maintenance	<p>Currently, class phraseology is automated for many General Liability codes (SMP and monoline), and for Workers' Compensation.</p> <p>As the operator enters a specific classification code (including applicable multiple description codes), the system automatically enters the corresponding descriptive phraseology. This descriptive data will appear in any subsequent on-line inquiries, and in hard copy production.</p>
Conditional Transaction Routing via Mainframe	The ability to verify selected policy data from locally processed transactions against central files, and route or flag local transactions based on next-day response from the host.

IV.

T A B L E M A N A G E M E N T

IV. Table Management General Description

The large system tables that are used to automate Commercial Lines manual rating tables are supported by a specific combination of SIMPL!E programs. These tables are created and maintained in the Implementer's Mode of the SIMPL!E Software System.

Designed to accommodate the frequent changes and revisions characteristic of Commercial Lines rate and coding tables, SIMPL!E's table programs can be used to create tables of 1-to N-dimensions, to control other tables, and to maintain the range of date-sensitive tables required for rate history files.

In the SIMPL!E system, rate tables are constructed as 2-dimensional matrixes, where the value of each line or column name (search value) may itself be multidimensioned.

Rate tables are composed independently of the insurance application programs. A table search is activated by an entry on the rating screen of one or more field values which correspond to the names of lines and columns in the target table. No additional interface is required: when the tables have been composed and stored on disk, they are ready for use with the applications programs.

Tables may be created and maintained either by system implementers, or by user or other non-technical personnel working in conjunction with implementers.

General Purpose

The design of these tables makes them readily adaptable to other applications which require 1-to N-dimensional matrixes that are easy to create, change, and maintain.

Table Architecture

On-Line Interactive

Tables are composed on-line, by following a conversational dialog with the system.

System Directed Entry

New tables may be created as original files, or by copying (renaming) existing tables.

User-Oriented

Rate tables are composed in two parts: the table shell and the table items. The table shell contains the table parameters, including the table name, the name and size of line and column headings, method of table search, etc. When the table shell has been composed and stored, the table's inner cell values are created with a separate program. The two-part construction makes it possible to manipulate, duplicate or print either the entire table or the shell alone. Partially completed tables may be stored and finished at a later date.

The system itself automatically maintains a directory of all tables. The table name itself is a descriptor: it incorporates such key elements as state code, line of business or subtitle, effective date and revision date of the contents.

Ease of Change

Addition and deletion of table lines, columns, and items may be accomplished without total re-entry of the table.

To minimize the number of table variations and table changes required, footnotes are normally embedded in the logic for the applications programs. This approach makes it possible to manipulate table rates with one or two lines of logic rather than revise an entire table.

Test Capabilities

When a table has been composed and the search logic for the application program has been completed, the table may be tested in the Implementer's mode before it is used in the production system. Updates and changes may be made to each table, as needed.

Audit Reporting

Tables maintained by Data Concepts' Tables Department are monitored with an automated table log.

Records are kept, on a system-by-system basis, of the status of tables in the system, including the time and date of the last revision, table type, and protection status.

Printing Supported

Tables may be printed and/or displayed in their entirety, or line by line.

System tables and their calling statements are composed in SIMPL!E.

V.

B E N E F I T S

V. Benefits

In actual installations, Data Conveyor Commercial Lines Policywriting Systems have produced multiple, measurable benefits for end users, system implementers, and other departments beyond the direct user group.

Rapid Availability of Complex Applications

An immediate benefit of SIMPL!E's conciseness is that new applications can be created and demonstrated in far less time than is possible with conventional development tools. Because the user sees a working model of the system far more quickly than with other application development methods, suggestions for change can be more specifically defined. Because the software architecture is inherently flexible, changes are also made rapidly.

Productivity Increased

Data Conveyor Commercial Lines Insurance Systems can help reduce manual transaction processing time by up to 80%. The system performs the bulk of routine processing tasks quickly and accurately, freeing the operator of redundant data entry and time-consuming manual document production.

Improved Information Availability

The result for other departments is far more rapid response time and impressive agent or customer service.

Improved Work Flow

Automated work flow and file handling improves efficiency by eliminating lengthy searches for records or lost files, speeding production time, and providing a flexible but consistent transaction flow.

Training Time Reduced

A reduction in the number of screens required for complex systems, screen formats which resemble familiar paper forms, and customized prompts and error messages make system training a far easier, more comfortable process for the operator. The automation of rates, rules and procedures makes it possible for rating personnel to achieve a high level of proficiency in a very short period of time.

In addition to the reduction in time required for rater training, investment in training for other functions that would normally be performed manually (such as statistical coding and policy typing) can be reduced or eliminated, depending upon the system's functional configuration.

Standard Operating Procedures

With system-controlled work flow and policy processing, consistency is a significant by-product. Standardization of calculations and forms production ensures consistent rating, processing and production results across company operations.

Dramatic Accuracy Improvement

With immediate, comprehensive editing of operator-entered data, elimination of duplicate data entry, and automatic generation of up to 80% of all of the data produced on the system, improved accuracy is an early, measurable, money-saving benefit. At one company, installation of a Data Conveyor system designed to rate, quote and issue multiperil policies resulted in greater than 95% premium accuracy before quality verification.

DATA CONVEYOR* SYSTEM

CONCEPTS

HARDWARE CONSIDERATIONS

FASIST*

SIMPLIE* SYSTEM

DATA/MESSAGE FLOW

MAJOR ADVANTAGES

DATA CONVEYOR CONCEPTS

The Data Conveyor System is Data Concepts Incorporated's complete hardware and software package for automating "front-end" business insurance policy systems. The Data Conveyor System is a complete transaction processing system which includes:

- a design methodology;
- a software development system;
- an integral data/message flow framework.

The Data Conveyor System design methodology is the Fully Automated Specification/Structuring Technique (FASIST) for defining insurance company applications. Applications defined through the FASIST methodology are implemented and executed by the Systems IMPlémentor/Executer (SIMPLIE) software. All processing takes place within a defined work-in-process/data flow environment.

The Data Conveyor System was developed in response to the need for flexible, easy-to-use office automation systems to be used in the insurance underwriting environment. The Data Conveyor System is a fundamentally new approach to the implementation and operation of transaction processing systems. The Data Conveyor System automates complex insurance transactions in a way that closely conforms to the natural office environment and the company's specialized processing requirements.

Currently, clerical users perform office processing tasks such as insurance policy writing on a manual basis. The process is difficult and complex. The rate of errors involved in completing applications, performing rating calculations, preparing policy formats for typing, typing policies, and filing policies for future use often exceeds 50% of the policies.

The Data Conveyor System reduces errors by 80% and can cut the clerical user time used to prepare a policy by as much as 70% of the time required for the identical manual operation.

Architecturally, the Data Conveyor System is based on two principal operating features:

- production line processing; and
- "electronic paper".

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Production Line Processing

Data Conveyor production line processing is analogous to a manufacturing production line: a product moves down an assembly line, and value is added at every work station, either by people or by specialized machinery, whichever is more appropriate.

Similarly, work progresses sequentially down the Data Conveyor System, and, at each work station, processing functions are performed cooperatively by a trained clerical user and the system, working in close collaboration. Immediate results for each transaction are stored in a work-in-process file for later display at subsequent work stations.

Transactions can be automated to any desired degree, from "lightly automated" (in which the clerical user performs most of the processing functions) to fully automatic.

The Data Conveyor System may have any reasonable number of work stations, and the specific processing tasks of a particular transaction may be assigned to the various work stations as desired. Individual transactions progress from work station to work station in accordance with transaction requirements, thereby forming a conveyor network rather than a common conveyor line.

In addition, all of these specific processing attributes and system features may easily be modified.

Electronic Paper

The system supports electronic paper in that it appears to be processing in accordance with established paper processing practices. Currently, clerical users who perform business insurance processing tasks on a manual basis complete applications, perform rating calculations, prepare policy formats for typing, type policies, and file the policies for future use.

The Data Conveyor System appears to do the same thing. With the assistance of the Data Conveyor System, clerical users process work in a familiar manner. The primary difference is that the system performs the bulk of the required processing tasks, and the clerical user, utilizing the electronic paper capabilities of the system, need only enter a minimum of source data and make appropriate decisions.

In essence, the system always tries to do the next processing step automatically. If it can, it displays the results and continues. If not, it requires the clerical user to take action. In this way, most of the routine clerical actions and processes are taken over by the system, resulting in far greater productivity, reduction of redundant effort, reduction in errors, lower cost, and greater accuracy.

HARDWARE CONSIDERATIONS

The Data Conveyor System is a flexible, distributed, interactive, transaction-processing system. The system hardware may be almost any high-performance minicomputer or microcomputer with appropriate memory, disk storage, video terminals, one or more printers, a tape drive, and communication devices.

Terminals can be added to or removed from the system easily and conveniently. Terminals can be used for a number of functions, such as:

- implementing new programs and maintaining them;
- testing and documenting programs;
- entering data; and
- updating rate tables.

Hardware Transportability

The SIMPLIE System application programs and system software can readily be transported to new hardware. Once a small (25,000 byte) interface program is written in the host assembly language and interfaced to the operating system, all system and application software can be moved without change. The SIMPLIE System exists as a task within the host; COBOL and word processing software, etc., can operate concurrently with the SIMPLIE System.

The ability of the Data Conveyor System programs to equal or exceed the functional capabilities of mainframe-based systems and yet operate on small computers is remarkable. When one considers that modern minicomputer hardware can be purchased at less than one-tenth the cost of mainframe hardware for equivalent throughput, the potential to satisfy new needs is apparent.

FAS!ST DESIGN METHODOLOGY

The Data Conveyor System design methodology is the Fully Automated Specifications/Structuring Technique (FAS!ST) for defining company applications.

Implementer and Clerical User Training

The Data Conveyor System software is structured to be conversational, for both the implementer and the clerical user. The Data Conveyor System is highly sophisticated, but its conversational structure allows the implementer to enter meaningful information without the need to learn a complex new language. Its conversational presentation on the display screen allows the clerical user to interact comfortably with the system without the need to refer constantly to user documentation or to attend lengthy training classes.

Specification Generator and Generalized Macros

The SIMPLIE System generates detailed specifications (Prescripts) rather than executable object code. A Prescript is a highly concise expression of an application. The SIMPLIE System Execution Programs execute these Prescripts directly during production operation. The Execution Programs are hierarchical sets of 100 common, generalized application macros. Because they exist in a hierarchical set, they too are highly concise.

The compact structure of both the Prescripts and the macros means that the SIMPLIE System can operate comfortably on a minicomputer, regardless of the complexity of the application being automated.

The SIMPLIE System has the equivalent of all the following conventional software built in:

- Terminal Control System;
- Data Base Management System;
- Report Program Generator/Report Writer;
- Batch Program Generator;
- Screen Formatter/Generator;
- Automatic Transaction Assembler;
- Automated Program Verifier/Debugger Aids;
- Automated Documentation Programs;
- Automated Work Station, Queue, File, and Task Scheduler; and
- Program Utilities.

The SIMPLIE System can automatically perform such common functions as:

- Work station queue management—setting up work station queues and transferring transaction markers from one station to another;
- Implicit reading and writing of records—automatic reading and writing of various records based on specific names and context; and
- Automatic programming—downstream programming functions, the equivalent of macro assembly, detailed coding, and linking are either automatically provided by the system or are not required.

Most of the system capabilities are transparent to implementers: hardware characteristics, operating system functionality, and a multiplicity of other programming features.

Data Base Management

The SIMPLIE System includes a comprehensive Data Base management facility which is optimized for executing SIMPLIE System applications.

All common Data Base functions which create, modify, use files, etc. are available. Access via multiple keys, use of linked or inverted files, file maintenance and protection features are also included.

In addition to the common Data Base functions, the SIMPLIE System contains several unique, integrated capabilities. One of the most powerful is its ability to handle bulk records. Bulk records have no fixed internal format, and may be of any size. They are extremely useful because they enable the handling of textual and formatted data and system control statements on an intermixed basis. In addition to other SIMPLIE System facilities, the ability to handle bulk records relieves system implementers of the necessity to format records. It also provides great flexibility and efficiency in file handling of nearly any form of data. The several bulk files provide unlimited virtual memory for complex manipulations of the SIMPLIE System. The operating system sees a bulk file as a giant relative file.

The SIMPLIE System enables easy two-way conversion between bulk and all other files such as relative, index, and sequential.

Because the SIMPLIE System has a universal file and formatting capability, it can easily interface with any other Data Base or combination of Data Bases on other systems, both centralized or distributed.

Named Data Items

The SIMPLIE System operates entirely on named data items and uses named data items during execution. Each data item has a name and value, and is referenced by name during execution. Data items may either be formatted or textual. The system handles formatted or textual data items with equal ease.

Modeling

Using the SIMPLIE System, an implementer may enter rough draft requirements for a new application. Once the requirements are entered, the application can be modeled (because it is now in executable form). Suggestions for improvements from users can easily be incorporated into the system within a few hours or days.

After two or three iterations, an acceptable version of the system is achieved. Because the application already exists in a high-performance form, it is unnecessary to rebuild the system to obtain a production version.

As a result, the SIMPLIE System permits the overlapping of three normally serial system development tasks: requirements specification, modeling (or prototyping), and construction of the production system.

Ease of Specification

One of the most difficult tasks in implementing a new program is to get the specifications right. Specifying in the FASIST design methodology is easy to do, not only for experienced systems analysts but for non-technical personnel as well. Users, or methods and procedures people who understand the business problem, can qualify as implementers. Under the FASIST methodology, the implementer prepares preliminary application requirements in rough draft or modeling format by filling out easy-to-understand, highly concise forms (FASIST forms).

The implementer then uses a video display terminal to select the type of program and to enter the FASIST data into the system through an interactive dialog with the SIMPLIE System. As a result of this dialog, the SIMPLIE System automatically creates an immediately executable application specification ("Prescript") in a highly condensed form.

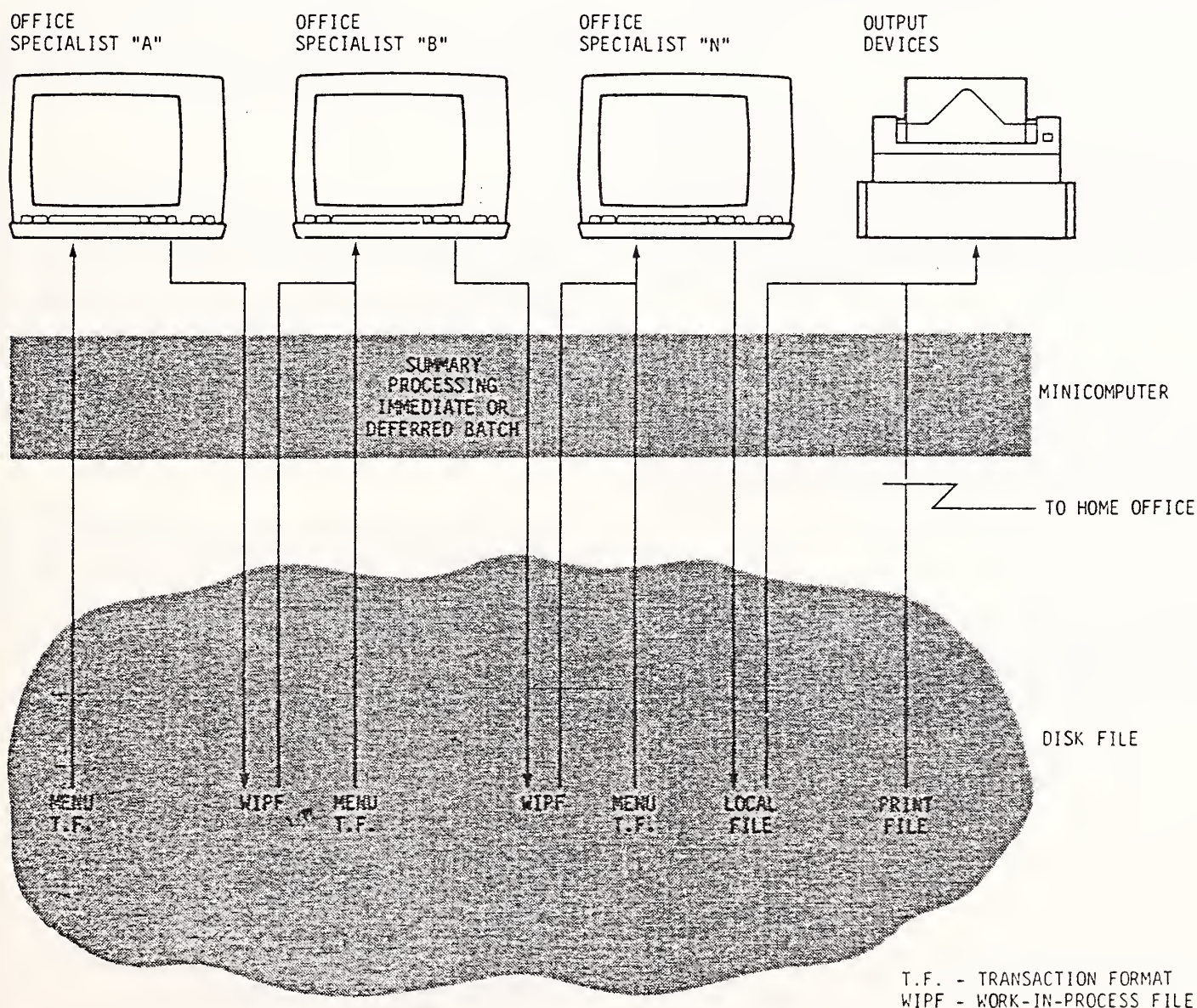
Applications which normally have taken months or years to create have been implemented in weeks and months.

SIMPLIE SYSTEM

SIMPLIE stands for the Systems IMPLementor/Executor. The SIMPLIE System was developed specifically to handle complex transactions processing such as found in commercial lines policy writing. It is a unified, highly leveraged, completely self-contained software system used for the creation, testing, documentation, and maintenance of this type of application. The SIMPLIE System is an "application generator/execution facility" type of system.

SIMPLIE System consists of three basic types of programs:

- Implementation Programs, which generate, test and document program specifications, called prescripts;
- Execution Programs, which carry out processing under direction of the Prescripts; and
- Interface Programs, which interface the implementation program generator and execution modules to the host computer system.



A Block Diagram of a Typical Configuration

Ease and Speed of Implementation

Programming (implementation) is thus an interactive procedure of entering specifications and verifying the resulting Prescripts. The SIMPLIE System contains an equivalent for all software elements such as interpreters, text editors, linkage editors, loaders, and Data Base management.

The implementer sees and deals only with the SIMPLIE System. There is no need for him to become familiar with a host of hardware or software characteristics. This enables the implementer to concentrate all efforts on solving the applications problem.

Implementation complexity is reduced; implementation may be consolidated into a job for a single person, or subdivided among several persons who have various application and organizational skills. New systems can be implemented in a few simple steps:

1. Prepare the specifications on FASIST forms.
2. Enter the specifications into the computer system.
3. The computer transforms these specifications into Prescripts.
4. The computer writes the Prescripts into executable form in an appropriate system file.
5. The insurance specialist tests the Prescripts through the video terminal and modifies them as required.

Transformation of a pilot set of Prescripts into the final working Prescripts is not a major, time-consuming process. An application program can be developed quickly from rough draft to final form, and its operation can be immediately demonstrated.

Ease of Debugging

Each set of Prescripts (application abstracts) exists as an independent module. Consequently, there is no ripple effect when an error is made in one of the modules. The SIMPLIE System's application testing and debugging at the specification level facilitates debugging. These two features dramatically reduce the effort required to test and revise complex transactions.

An application program is debugged by running sample applications on a step-by-step basis and observing the partial results as they are displayed.

Documentation

The SIMPLIE System automatically prepares application documentation at the Prescript level. Appropriate comments are entered during the Prescript specification process in answer to prompts provided by the system. Thus, documentation is always up-to-date, reflecting the latest modifications and enhancements to the program.

Because documentation is easy to create (and is free from manual transcription errors), users can always have "live" documentation with which to work.

Inherent Data/Message Flow

Implicit within the Data Conveyor System is the ability to transfer messages and data between work stations and other system elements. Normal routing is designated at the time a transaction is defined. This flow may be altered either by system logic or operator action. Both attended and automatic work stations are inherent to the system, the number of which may readily be expanded or contracted. Nearly all of the above features are available without programming at the application level.

MAJOR ADVANTAGES

Compared with conventional programming techniques, the SIMPLIE System offers a ten-to-one or greater improvement in four vital areas:

- high adaptability;
- high productivity;
- machine independence; and
- high conciseness.

High Adaptability

The SIMPLIE System includes the following capabilities:

- the ability to process both formatted and textual data interchangeably;
- the ability to produce systems in user friendly form;
- the ability to automate even the largest and most complex business transactions;
- the ability to implement applications with varying levels of automation (it is not necessary to automate an application completely unless so desired); and
- the ability to operate in and support an environment of continuous change.

High Productivity

The SIMPLIE System is a highly leveraged software tool that enables an implementer to create and maintain applications with a small fraction of the effort required by conventional programming techniques. For complex applications, the rate of productivity of an implementer using the SIMPLIE System is at least ten times that of a programmer writing the same applications in COBOL, for example.

Machine Independence

The SIMPLIE System is inherently machine independent, except for a set of low-level Interface Programs (approximately 25,000 bytes) which must be written in assembly language code once for each microcomputer system on which the SIMPLIE System is to operate.

High Conciseness

The SIMPLIE System provides all of the functional capabilities mentioned above for high adaptability, high productivity, and machine independence, yet it is very concise. This structural advantage enables it to run on a minicomputer system, the natural form for office automation systems.

DATA CONVEYOR SYSTEM OVERVIEW

Data Concepts Incorporated
420 Bedford Street
Lexington, Massachusetts 02173

IN TODAY'S HIGHLY COMPETITIVE BUSINESS ENVIRONMENT,
THE ONLY CERTAINTY IS CHANGE.



DATA CONCEPTS INCORPORATED

Tools for a Changing Environment

In today's highly competitive business environment, almost the only constant is change. Leadership in the markets of the '80s means continually introducing new products and services, improving existing products, customizing for new markets and controlling costs to stay competitive. Product life cycles are shorter. Price quotations must be made rapidly and accurately. With changing prices and product lines, information processing cannot lag behind operations.

Processing the increasing amounts of data required to serve customers and support a business is a big undertaking. Businesses look to automation to manage more information and improve productivity. But sometimes the complexity of the computerized "cure" only aggravates the existing paperwork disease.

Not all Transactions are Created Equal

Within a given business, different kinds of transactions must be handled. For many large companies, customer service transactions -- the "production" side of the business -- happens in branches, divisions, and regional offices, but data processing activity -- administrative and financial applications -- remains centralized. Both the "branch office" transaction handling and corporate data processing must be supported. But the requirements and characteristics of different transactions can be extremely diverse. The differences can - and should - make a difference in a company's plans for automation.

The Economics of Automation

In the past few years, the cost of computer equipment has fallen as fast as hardware performance has improved.

But the cost of developing and maintaining applications software for computer systems has skyrocketed while "software productivity" for certain types of applications has lagged behind. Published surveys pinpoint bottlenecks in two areas:

1. The documented number of applications in corporate data processing centers is growing at a rate of 45 percent per year.
2. Today's programmer spends 70 percent of his time reworking old programs to enable them to handle new requirements or to make them work with new equipment.

The Search for Software Productivity

To be truly responsive to business needs in the next decade, software should improve productivity in two areas:

For the user, the application program should be easy to learn and work with. It should handle the transactions required, and be adaptable to the inevitable changes of the business.

For programmers, the software development tools should help create a new application or complete maintenance work quickly. Ideally, an applications software development system should be a complete "toolbox" for developing, maintaining, testing and documenting an application over its entire life cycle.

There is a system that offers such dual productivity. It's called **SIMPL!E**.

SIMPL!E: THE COMPLETE LIFE CYCLE OFFICE SOFTWARE SYSTEM

SIMPL!E is a unified, comprehensive, self-contained software system. Designed by Data Concepts to automate highly complex business transactions, SIMPL!E models, tests, documents, maintains, and executes complex applications in only a fraction of the time required with conventional software development tools. Operating on powerful but economical mini- or microcomputer hardware, SIMPL!E incorporates all of the functions required to create, use, and maintain an applications program.

SIMPL!E stands for Systems Implementor/Executor. A fundamentally new approach for handling distributed transaction processing, SIMPL!E

- easily accommodates applications which require continuous change
- handles applications in which decision making and addition of new data are required throughout the transaction cycle
- handles both formatted and unformatted data in one system
- requires only one English-like "specifying" language to use the system.

Why the emphasis on complex transactions?

COBOL and most other conventional design tools were optimized for centralized, batch-oriented processing environments. When processing requirements and output formats are relatively stable, these tools fit the bill. But the languages used for simpler, more stable applications are too cumbersome to adapt to constant change. For applications which don't stand still, companies need a software tool designed for the requirements of a complex system.

SIMPL!E was developed specifically to automate complex transactions in a distributed processing environment.

What about other high-level tools?

Most other high-level application development tools are also optimized for specific types of applications. Many of them address only portions of the overall application, such as report or data base requirements. Most are not generalized tools. And most high level tools do not generate application programs directly from specifications. **SIMPL!E** does.

SIMPL!E is a flexible, completely interactive system which can be used by both programmers and end users, with dramatic time and cost saving results.

SIMPL!E integrates all of the elements required to address all phases of the software life cycle:

Terminal Control allows the user to access programs, use the system's menus, and enter data.

A Screen Formatter and Generator facilitates the design and presentation of screen displays. The dialog used to develop a screen format also prompts the programmer for data field formats, field edit checks, and field calculations.

A Batch Program Generator provides the facilities to perform summary calculations on a single file or hundreds of files of data.

A Report Program Generator facilitates the design of formats for printed output and controls the printing of all forms.

An Automated Program Verifier and Testing Aids simulate the applications execution mode, so programs can be tested "live" before they are assembled together or added to existing applications.

Automated Documentation Programs provide complete current documentation for program statements, screen and output formats, directories, and other system facilities.

An Automatic Transaction Assembler uses a simple program to assemble the elements of each complete transaction into executable form.

Automated Work Station, Queue, File and Task Schedulers handle the "job management" details for every transaction, every application.

A unique Data Base Management System creates, stores, deletes, and maintains all of the files in the system automatically. Because data is stored in an unformatted or "bulk record" form and data base management is accomplished with a few simple naming conventions, the programmer need not format data (unless the application requires it), or be concerned with the location of data in storage in order to use it.

Program Utilities include a comprehensive set of service routines for duplicating programs, updating programs and lists, etc.

Unlike conventional software, however, SIMPL!E itself performs many of these functions automatically and transparently to the programmer. Simply by following a concise, conversational dialog, a programmer can enter all of the information required to create and maintain even the most complex applications.

HOW THE SYSTEM WORKS

SIMPL!E software consists of three basic types of programs:

- o Implementation Programs, which generate, test and document application specifications called PRESCRIPTS;
- o Execution Programs, which carry out processing under the direction of Prescripts; and
- o Interface Programs, which connect the implementation program generator and execution programs to the host computer system.

The system also incorporates a design methodology to help speed system development.

FAS!ST Design Methodology for Ease of Specification

One of the most difficult tasks in implementing a new program is getting the specifications right.

The design methodology used with SIMPL!E software is a Fully Automated Specification/Structuring Technique (FAS!ST).

FAS!ST is easy for both experienced systems analysts and non-technical personnel to use. With the FAS!ST methodology, the programmer or implementer prepares a rough draft of preliminary application requirements by filling out highly concise, easy-to-understand forms. These FAS!ST forms outline the screen layout, output processing and form layout, and batch processing requirements for the entire system.

SIMPL!E Generates Executable Specifications...

The implementer uses a video display terminal to select a program and enter data into the computer by following a conversational dialog with SIMPL!E. The dialog prompts the implementer for instructions on what should be done with the data; the system takes care of file creation and retrieval, storage, and control procedures.

As a result of this dialog, SIMPL!E automatically creates a highly concise set of specifications called PRESCRIPTS. PRESCRIPTS are immediately executable by the system, with no further programming steps involved. As far as the implementer is concerned, the specifications (Prescripts) are the program.

To Bring Complex Applications On Line Faster...

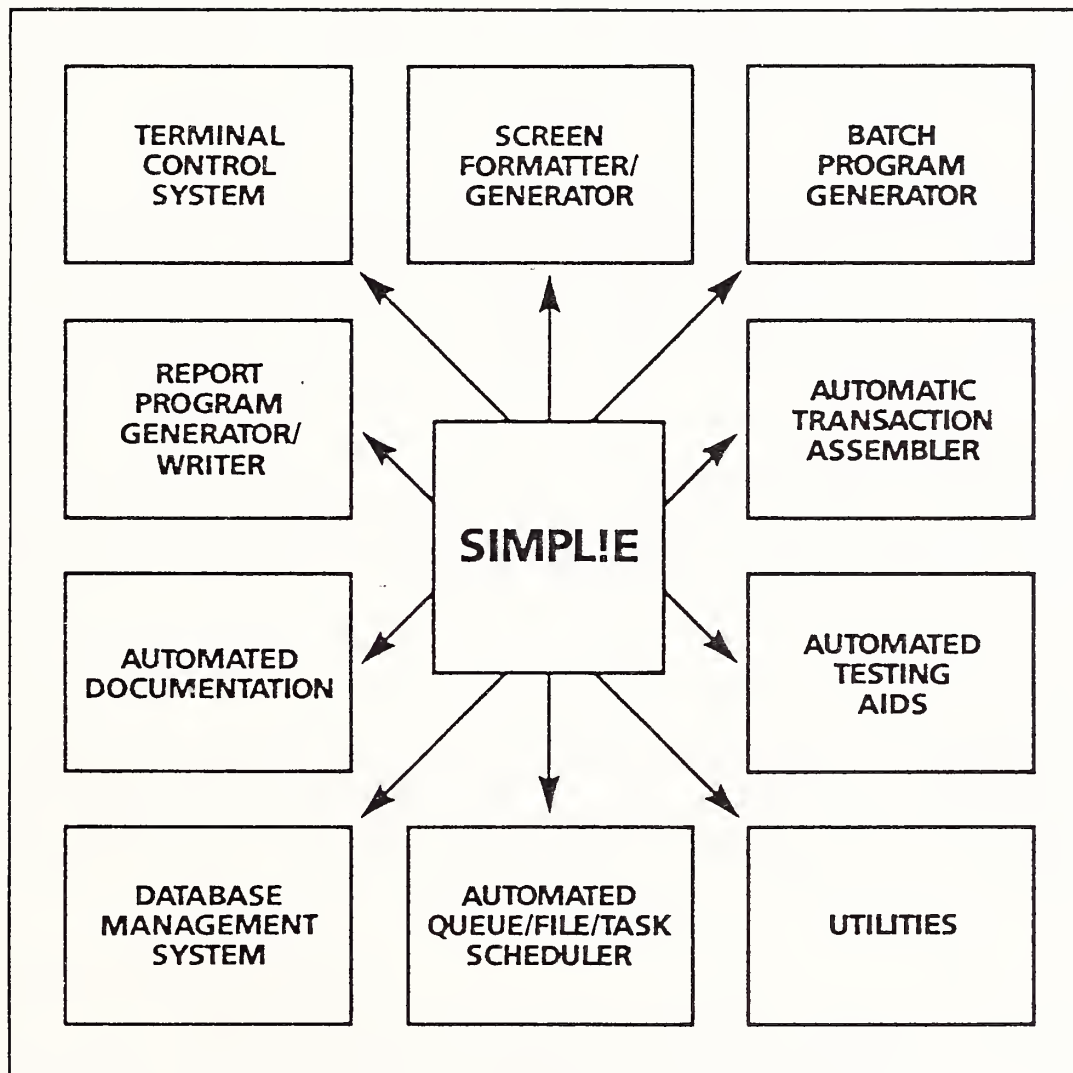
Because Prescripts are directly executable, the prototype application can be tested and demonstrated immediately. Suggestions for improvements from users can easily be incorporated into the system, often in minutes, hours, or days.

Because both the system and the implementer work only with specifications, and because the system overlaps specification, modelling, and construction of the production system, applications which might otherwise take months or years to create can be developed in weeks or months. "Downstream" programming functions - the equivalent of program assembly, detailed coding, and linking - are either automatically performed by the system itself or are not required.

...And Executes the Application Under Prescript Control

The Prescripts generated during implementation control the system during production operation. The Execution programs themselves consist of a set of 100 common, concise, generalized macros, which combine hundreds of programming steps in a single module.

The compact structure of both the Prescripts and the Execution programs means that **SIMPL!E** software can operate comfortably on a mini- or microcomputer, regardless of the complexity of the application involved. This conciseness allows companies to take full advantage of price/performance advancements in hardware technology.



Data Base Management

SIMPL!E software includes a comprehensive data base management facility which is optimized for complex transaction processing systems.

All data base functions required to create, modify, use and maintain files are available. Files may be protected from unauthorized access and from simultaneous attempts by more than one user to update the contents of the file.

In addition to conventional data base functions, the **SIMPL!E** system provides several unique, integrated capabilities. One of the most powerful is its ability to handle unformatted data in "bulk record" form. This bulk record capability enables the system to handle text, formatted data and system control statements on an intermixed basis, and relieves the implementer of the need to format records.

SIMPL!E software enables easy, two-way conversion between bulk and conventional formatted record types. Because it has a universal file and formatting capability, **SIMPL!E** can interface with any other data base or combination of data bases on other systems, both centralized and distributed.

Ease of Testing

Each set of Prescripts exists as an independent module. Consequently, there is no ripple effect when an error is made in one of the modules. Because system testing is performed at the specification level, the effort required to test and revise complex transactions is dramatically reduced.

Automated Documentation

Because the **SIMPL!E** system virtually documents itself as specifications (Prescripts) are created; documentation is always current. Whether a displayed or printed version is required, documentation is easy to create and free from manual transcription errors.

Hardware Considerations: Economy and Transportability

SIMPL!E's compact design enables it to operate comfortably on today's powerful, attractively priced smaller systems. **SIMPL!E** software may be used on almost any high-performance minicomputer or microcomputer with appropriate memory, disk, storage, video terminals, one or more printers, a tape drive, and communications devices.

Both the system software and application programs can readily be transported to new hardware. Once a small (25,000 byte) interface program is written in the host assembly language and interfaced to the operating system, all **SIMPL!E** system and application software can be moved without change. **SIMPL!E** exists as a task within the host and can operate concurrently with COBOL, word processing, and other software.

Specifically, How Can **SIMPL!E** Help?

Compared with conventional programming techniques, the **SIMPL!E** system helps both technical and non-technical people function more efficiently.

For complex applications, the rate of productivity of an implementer using **SIMPL!E** software is at least ten times that of a programmer writing the same applications with conventional software tools.

Major advantages are

- o **Conciseness**

The specifications (Prescripts) developed with **SIMPL!E** are only 1/50th the size of programs written with conventional methods. Because Prescripts are so highly condensed, and because they in turn call on a set of highly condensed, universal "macro" functions, maintenance of highly complex applications is easier and faster.

- o **Increased Productivity**

Because both the implementer and the system work only at the specification level, development of a production system is not a separate step in building the system. Application development is streamlined, so users can see a model system on line in a very short time. Corrections and revisions can be "turned around" with far less time and effort.

- o **Adaptability**

With **SIMPL!E** software, applications can be automated to whatever degree is most appropriate for your business. Even when data is entered manually, the computer completes its task as though the operator's entry was programmed into the system.

- o **Scope**

Implementation

To combine the range of capabilities built into SIMPL!E, programmers would normally need to learn several languages, and become familiar with file management, task scheduling and a host of other software and hardware considerations.

With SIMPL!E software, most of the system's operations are "transparent" to implementers. While more technical system management capabilities may be used directly by experienced programmers, non-technical people can develop most applications with minimal attention to technical details. And only one "specifying" language is required.

In Production: A Data Conveyor System

The combination of hardware and an application developed with SIMPL!E software forms a complete transaction processing environment called a Data ConveyorTM System.

Architecturally, a Data Conveyor System is based on two principal operating features: production line processing and "electronic paper."

Production Line Processing

Data Conveyor production line processing is analogous to a manufacturing production line: a product moves down an assembly line, and value is added at every workstation, either by people or by specialized machinery, whichever is more appropriate.

Similarly, work progresses sequentially through the Data Conveyor System, with processing functions performed cooperatively by a trained user and the system at each workstation. Immediate results for each transaction are stored in a work-in-process file for later display at subsequent workstations.

A Data Conveyor System may have any reasonable number of workstations, and the specific processing tasks of a particular transaction may be assigned to workstations as desired. Individual transactions progress from workstation to workstation in accordance with transaction requirements.

It Works Just Like Paper

With the assistance of the Data Conveyor System, users process work in a familiar manner. The primary difference is that the system performs the bulk of the required processing tasks, and the user, utilizing the electronic paper capabilities of the system, need only enter a minimum of source data and make appropriate decisions. In this way, most routine actions and processes are taken over by the system, resulting in far greater productivity, reduction of redundant effort, reduction in errors, lower cost, and greater accuracy.

What About Support?

The **SIMPL!E** system is continually enhanced and improved to incorporate new technical facilities and make the software even easier to use. The warranty covers **SIMPL!E** for the life of your installation.

For technical and development assistance, Data Concepts' applications and data processing staff can provide on-site consultation or answer inquiries by phone. In addition, training and documentation are part of your support package.

The Company

Data Concepts, the developer of the **SIMPL!E** software system, combines a broad base of experience in information management, data processing, and software language development. The firm's work with office systems in the banking, insurance and securities industries and government led to a concept of a unified automation system for complex transactions, and to the formulation of a new specifying language for expressing common system operations.

SIMPL!E software is now used to automate even the largest and most complex transactions, and maintain them easily within a changing business environment. This powerful, integrated fourth-generation software tool has provided documented savings - up to 80% in development time and up to 70% in transaction processing time.

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best's review

March
1983

Automating Front-End Multi-Peril Policy Writing

by JACK MONAHAN
Division Manager
Commercial Field Operations
Allstate Insurance Cos.

AT ALLSTATE Insurance Cos., an automated system for rating, quotes and writing multi-peril and related monoline policies was implemented successfully in less than 18 months at a total development and working system cost of less than \$1.5 million. The system, which uses the Data Conveyor System from Data Concepts of Lexington, Mass., and handles more than 43,000 policies in force, resulted in a projected savings of more than \$7 million for a five-year period.

Certain areas within the insurance industry, because of their size, complexity and unpredictable variations, have strongly resisted automation in spite of massive attempts which have resulted in systems that are difficult to use, maintain and update. The front-end portion of multi-peril policy writing is a good example of this. If there ever was a business activity needing computer assistance, multi-peril is it. The number of forms involved is large; the quantity of manuals, tables and regulations is overwhelming; the opportunities for errors and spontaneous variations are unlimited. It takes years to become fully proficient in multi-peril policy rating. The per-policy handling costs are comparatively high. The chance that one or more significant errors will survive the entire policy creation procedure also is quite high.

Unfortunately, the same factors that point to the need for computerization of multi-peril front-end policies also stand in the way of achieving that goal. The immensity of the task implies a large and expensive effort. The "moving target" nature of the activity in terms of changing figures and re-

quirements suggest that it may be nearly impossible to keep completed systems current with new changes.

In spite of the enormity of the task, Allstate decided to approach the multi-peril automation problem directly because we believed that a good solution would significantly enhance our productivity. The results: 80% reduction in average processing time, 95%-plus premium accuracy *before* quality verification; standardization of all procedures, calculations and data among all raters and offices; and reduced operating costs on 43,000 policies in force for savings of \$7 million gross over a five-year projected plan.

Planning a System

Planning for our system began several years ago, when a software product which could handle quoting, coding and policy issuance for multi-peril policies became available. The claims for the system, combined with its estimated development cost and timeframe sounded so optimistic that we were far from convinced, but we were interested. If the system proved valid, it would give us an opportunity to change Allstate's multi-peril system in ways that we had considered unattainable through traditional automating efforts.

After a series of meetings between DCI and Allstate, approval was given for a test system. If successful, the test system would be expanded to additional policy handling functions. This test system was designed to meet the following criteria:

(1) Provide rating (including rate look-up) for quotes on 80% of multi-peril accounts.

(2) Handle the ISO multi-peril manual, including all states affiliated with ISO, and exceptions therein.

(3) Do fully automated look-up

of rates, etc., yet allow operators to do manual look-up and override system-generated entries and calculations.

(4) Do minimum premium calculations.

(5) Handle "oddball" coverages as part of automated activities, through a "miscellaneous" screen.

(6) Handle 99 locations and \$10 million in premium per policy.

(7) Determine, for print purposes, automatic coverage forms

(8) Provide override, suspend, call-back and other features.

(9) Offer automatic rating for specific coverages and perils, such as fire, building, personal property, time element, general liability, crime, glass and earthquake.

(10) Be issuable for multi-state exposures.

A full commercial rater analyst and I assisted in designing the screens to be used and in defining the flow of procedures. Six months after the go-ahead was given, DCI presented a test system. It did everything called for in the proposal.

Implementation

Allstate subsequently contracted for delivery of a system capable of handling multi-peril rating, coding and issuing of policies for all states. Less than a year and a half from the project's initiation, the system was running in every Allstate regional office. The total cost of the system, from development to finished product, including the test, came in under \$1.5 million.

What Allstate had was an automated system which could be installed on relatively inexpensive, stand-alone office minicomputers and which was capable of rating, coding and issuing 80% or more of all multi-peril policies. The system workload consisted of about 25,000

(Continued)

existing and new policies in force.

The automated multi-peril system has resulted in a wide variety of benefits and improvements from the standpoints of front-end activities and data processing resource support. In terms of Allstate's front-end multi-peril activities, the DCI system has cut out an average of 75% of the work time needed per policy for rating and typing, simply by speeding up the handling effectiveness. This has translated into tremendous improvements in productivity.

Error Reduction

Errors are avoided through the automatic look-up, checking and calculations done by the system. Any given item needs to be entered only once, no matter how many times a premium references it, saving time and preventing errors. Automatic checking of entered and calculated data allows us to catch many of the errors that do occur, and automatic selection of proper forms eliminates another traditional source of error.

While speed and accuracy have been enhanced, the system has reduced dramatically opportunities for errors in policy writing. Industry averages say that one-half of all policies survive normal processing with significant errors. Using the automated multi-peril system from Data Concepts, we are reporting a 95% accuracy—before verification!

Standardization

Standardization has been another important outcome of automation. With manual processes, there are infinite opportunities for variation to occur. How many decimal places are carried? Do you truncate or round? What interpretation do you use? Do you have the most current charts and tables and rulings, etc.? Building these decisions and this information into an automated process standardizes the way in which policies are created, thus insuring consistency for rating and policy issuance from person to person, day to day and state to state.

Automating the multi-peril system also has yielded advantages in the cost and time required for training. It can take four to six years to become fully trained and experienced in handling the entire range of activities associated with multi-peril accounts when using a manual process, but with our new system, we can give an operator four to six weeks of training and have him or her perform as capably as the more experienced manual rater. No system can substitute for judgment or experience—but it can spur a quantum leap in an employee's capabilities.

Our automated multi-peril system also gives our raters a totally new facility—the ability to do multiple versions. Once an original quote has been processed, raters can generate policies with any degree of variation simply by taking the original data and changing desired items. Additional versions of policies can be prepared in minimal extra time.

The special program form used to control tasks, changes and updates has resulted in low data processing maintenance. Additions can be made to our multi-peril system much more smoothly than to large COBOL/mainframe systems.

The Bottom Line

Our venture into automating our multi-peril system has been a great success. First, we saved several million of the \$7 million budgeted for handling multi-peril activities. Next, the new system standardized all procedures, calculations and data, which resulted in increased efficiency and decreased operating costs. Those savings, in turn, contributed to reducing our commercial regional offices from four to two. In addition, employees have been spared the tedious task of identifying and correcting errors. Agents benefited because they now are able to respond to policy requests in markedly shorter times, while everyone has benefited from the reduction in errors.

Allstate's multi-peril system is a delight to work with as well as a great dollar saver, and it is running proof that complex areas of our business systems can be automated successfully. □



national underwriter

PROPERTY & CASUALTY INSURANCE EDITION

WHEN IN-HOUSE EDP ISN'T ENOUGH

By HAL O'CONNOR

The commercial insurance business is rapidly moving into open competition in all lines. For some time the industry has been moving away from fixed, structured rates. The prospect of open competition is one of the primary factors which prompted my company, American Mutual, to take a hard look at its products, margins, productivity and general ability to respond quickly to a sophisticated, rapidly changing marketplace.

Insurer's success

Any insurer's success depends on its ability to provide quality, modern products at a competitive price, while retaining a profit margin which, coupled with investment income, can provide a surplus sufficient to support steady growth. As many companies are aware, investment income alone may not be adequate to offset deficits from underwriting results. While good claim handling and loss prevention service will help control the loss portion of the premium dollar, commercial lines policy production is still labor-intensive. Workers' compensation policies in particular have defied attempts at meaningful levels of automation. Front-end policy production, endorsement issue,

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error correction and file handling absorb too much of the expense dollar.

For all too long, we had been searching for automated systems which would help us lower our expense ratio. Hundreds of man-hours of meetings internally and with other companies produced very little but masses of specifications and calls for more meetings. One large national organization working with a multi-company Beta group "threw in the towel" after an investment of several years and thousands of dollars. We suffered as part of the group and came out with nothing usable for all the time and money spent.

Though our in-house data processing staff has done an excellent job on large, mainframe-processed personal lines and corporate financial applications, they could not resolve our major commercial lines production problems with available software technology and staff. Best-guess estimates of in-house application development were economically out of the question. Furthermore, neither our users nor our data processing staff wanted to commit to the process or to estimate the results because of the problems inherent in defining massive specifications, and in maintaining a system that is subject to constant change.

In short, we had run out of gas on a mainframe-based approach. As a re-

sult, in the spring of 1981, I was requested to research the subject and see if there were solutions to user needs beyond the avenues previously explored. We knew by this time that, in addition to solving workers' compensation production problems, the system would have to be user-friendly and operate on hardware we had or which would clearly pay its own way in a short period of time.

Solution appears

After several months of presentations and of talks with hardware and software vendors, the solution appeared in a demonstration of Data Concepts' (DCI) Data Conveyor System. The Data Conveyor is a concept which combines low-cost mini- or microcomputer hardware with software that is targeted directly at the commercial lines policywriting process. The system's software makes workers' compensation policy administration far more efficient by automating most of the tasks we were performing manually. Instead of a solution involving only partial automation, we were offered the prospect of a complete, fully customized system tailored specifically to our needs which could be run on powerful, but economical hardware.

Once the decision to go was made, getting the first application up and running came about quickly. To be pre-

cise, 83 days after our management first met with a Data Concepts project team, on Nov. 3, 1981, the software was delivered and testing was under way in our northeastern division office. The new system produces an assigned risk quotation according to rules governing the Assigned Risk pools and turns an accepted quote into a policy. Quote-to-policy conversion requires only the entry of changes requested by the agent. The system can also produce a policy from a direct writing sales application without the quote.

Working from only four video display screens, the system produces either a quote or policy declaration page, a schedule of classifications, an unlimited list of locations, an office records endorsement which contains the producer of record or finance company if any, and miscellaneous instructions such as type and location of audit.

Major breakthrough

The information required to produce this output is entered by the operator. With no additional operator input, the system also generates endorsement schedules, the appropriate budget or payment plan notice (including fixed or graded commission calculations), and—a major breakthrough—the statistical history card and all statistical coding for the compensation premium for a given policy.

The system can rate single state or interstate policies by insured, by location, by state, or by any combination. Finally, if an (a) rated classification is developed which is not in the tables, the system permits the operator to enter underwriting data, including classification number and description, rate, exposure and minimum premium. The system then uses this data as if it had come from the tables, with no need to pull the policy for manual production. On an average compensation policy, the original production process takes about six minutes. Turning a quote into a policy or an original policy into a renewal takes about one minute. And because the system edits all data as it is entered (and cross-checks specified items for accuracy), our error ratio is expected to fall to one half of one percent on renewal.

A plus

A real plus during development was ease of communication: most of DCI's program developers were insurance people who were taught the system,

not programmers who were taught insurance. One member of DCI's project team, a former insurance rater, had been with the company only 30 days and had never written a computer program, yet that individual wrote most of the program to our satisfaction. Another great user-plus was that the project required no additional staff on our part and was done with no company systems or DP staff directly involved.

The combination of the policywriting system and mini/microcomputer hardware will enable us to use both our human and financial resources more effectively. The system currently runs on a minicomputer installed in our northeastern division office in Wakefield, Mass. Very shortly, we will replace the mini with a microcomputer which will run at roughly three times the speed of the mini at about one third the cost. The low cost and substantial horsepower of the micro mean that we can keep processing distributed to the degree that it is economical and desirable for us. At this point, we plan to install micros in each division office.

Among other considerations, we can avoid the heavy cost of maintaining on-line long distance communication with a centralized processor and the pitfalls of having all of our eggs in a mainframe basket.

At this point in the project evolution, development continues on automated audit rating and audit assignments to eliminate the need for maintaining hard copy. Assignments and audit worksheets will be produced from the master file as needed. In addition, the premium section of the unit statistical card will be a byproduct, eliminating the need to code or key-disk the statistics to our mainframe. These projects are also under user-controlled ad hoc teams—but that's not the end of the story.

The workers' comp project development has been so successful that, at the request of user departments, we are proceeding with similar plans to automate commercial auto and SMP. A program is also being developed to integrate division credit and collection with the policywriting systems on the micro computer. With this user-friendly software, we have a six month target date to be on line with several of these new applications.

One significant side benefit has been the enthusiasm the new system has generated, both among people who are

directly affected by the changes and in other departments. Departments involved with the WC installation have been extremely receptive. Operators have asked for additional keyboard training when they felt a need to sharpen their skills. Other departments not directly involved have been interested in the project from its inception and have asked that we consider applications for their units. To date, we've had requests for 110 applications. In short, our motivation to continue has come from both current and potential users.

In just over a year, we've made tremendous progress toward freeing our user departments from absolute reliance on home office data processing, and from a mainframe focus that couldn't solve many user problems. Although all programming has been done by Data Concepts, our users are completely in charge. We're getting a system that meets our needs, with the expectation of cutting our policy production costs in half.

We've also learned a few lessons. The first is that users should be in charge of user projects. This means management commitment, budget, and project leadership. Second is a new perspective on technology. While we would expect that a given configuration of micro hardware will soon become obsolete, the amortized cost will be low enough to permit migration to new hardware or upgrades to existing equipment at relatively short intervals. Furthermore, software development should continue to improve and become even more user-friendly, thereby enabling it to keep pace with or surpass hardware advancements. From a user standpoint, software is the key to progress.

I am convinced we are finally on our way to using computers as technical and management tools of the trade, not as highly complicated techniques under the exclusive control of data processing experts. I also believe, however, that our data processing people will benefit from all of these changes. With this approach, they can see relief from heavy pressure to program, re-program, and maintain an ever-increasing volume of applications for end users. Programs developed in-house for the mainframe require major commitments of systems, programming, and other data processing personnel. Conversely, many of the so-called packaged programs require changes to a stan-

dard application program, known in the industry as a "vanilla," with subsequent complex maintenance and development problems. This new user environment enables home office mainframe personnel to concentrate on what they produce best—large, relatively stable programs and corporate management reporting.

Personally, I have become an enthusiastic, dedicated advocate of distributed processing. User-friendly applications programs running on microcomputers appear to be the answer to a great many of our present and future production problems and thus expense control. ♦

